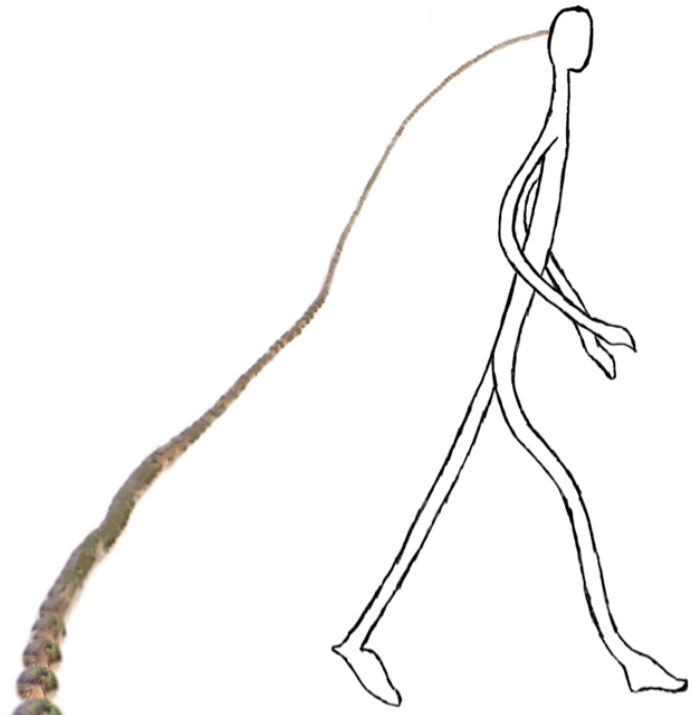

ON CREATIVITY, METABOLISM AND EXPERIENCE

TAYLOR HINCHLIFFE

Dedicated to my amazing family.

CONTENTS

"No Self stands alone. Behind it stretches an immense chain of physical and mental events, to which it belongs as a reacting member and as a special class within the whole and which it carries on." - Erwin Schrödinger

PREFACE

This writing aims to take Erwin Schrödinger's aforementioned chain of mental events and visually and intuitively abstract them through space and time at individual, societal and population scales from the vantage point of direct visual experience. The act of doing so is simultaneously intended to function as the teaching of a process called 'visual systems thinking', which can be applied to any system of interest to the reader, typically for creative ideation. Although a hypothesis concerning the neuroscience of vision was formulated by the author while writing this book, such will not be the focus here. Therefore, this work does not intend to raise novel scientific claims, only novel perspectives. The ultimate goal of this writing is not only to give the reader new thinking tools they may not have realized they possessed, but also to visually and systematically dissolve cultural and geographic boundaries for the sake of generating empathy in a time when it is so desperately needed.

In addition to Erwin Schrödinger, heavy influence was also drawn from Buckminster Fuller, Donella Meadows and Kenneth Boulding.

I. INTRODUCTION

"Лучше один раз увидеть, чем сто раз услышать."
"It is better to see once than to hear a hundred times."
Russian Proverb

What occurs while reading an interesting book? If focus is properly maintained, chains of words are sequentially strung together to construct mental imagery that continuously flickers in and out of our conscious attention, with each picture appearing as a piece of a larger puzzle. Words continuously adjust the angle of the mind's camera. A good book may thus stir an engine of creativity through which uses an input of language to spin the mind's visual photo reel to produce something novel and something beautiful. Various loose analogies might include amino acids being strung together to produce proteins, or the threading of yarn to produce a tapestry. Yet these pale in comparison to the systems of imagery of which the mind is capable of generating. Despite this, the creative potential of many individuals often sinks below the threshold of conscious awareness, often weighed down by the burden of mundane routine or simply through a lack of practice.

Indeed, it is of the author's humble opinion that pushing the resolution and complexity and beauty of experienced mental imagery may be practiced not unlike

playing an instrument, as both involve honing specific neural pathways. This book will attempt to critically focus attention to this mental imagery through space and time from an abstracted philosophical perspective, with the hope that both applied and theoretical knowledge will visually *arise* in the reader. Some repetition is intentional with the aim of fostering a kind of artistic practice. Therefore, this also serves as a reminder that readers too are artists, because reading forces one to generate unique visual abstractions based on limited sensory data — one of the greatest strengths of humankind.

II. LOOKING BACK TO LOOK FORWARD

"…and the unseen is proved by the seen,
Till that becomes unseen and receives proof in its turn."
Walt Whitman

Throughout the entirety of 'chain-linked' energetic transformations constituting the steady emergence of life, a commonality exists among all organisms in the form of the continued interpretation and adjustment of streams of sensory data. Even if some mechanisms seem rudimentary compared to human sense organs, e.g. the biochemistry of bacterial chemotaxis, a 'simple' single cell still contains a staggering array of sense-and-respond apparatuses. Yet in our modern society, the ability to adjust and customize streams of collected sensory data, and thus experiences, has assembled into levels of complexity and numbers of possibilities seemingly alien to the rest of the natural world. This is in part due to the sheer amount of noise, choices, and distractions that influence how attention is allocated and how metabolic resources are put to use. The successful navigation through this complexity, towards a set of desired experiences different than those in the individually-experienced-present and with minimal 'path-derailings', has no formula, but may be 'smoothed out'

through the mental assembly and aggregation of abstractions that may be generalized across wide ranges of experiences, and thus partially-repeat themselves across wide ranges of experiences.

Yet instead of creating a bullet-list of solidified abstractions or axioms, this writing aims to help realign the reader with the creative tools they already possess, with the hope that doing so will encourage readers to generate their own unique sets of principles to promote the overlay of order onto the complex navigation of self through society. Therefore, the book partially aims to function as a mechanism of practice for visually enhancing individually-unique experiences for an essentially infinite array of dynamic goals. This quasi-infinite array of goals continuously generated, dropped, recycled and repurposed by all of humankind are in part resultant of the electrons in the human mind subduing, transforming and manipulating external electrons. Abstractly parsing through this complexity will require shifting through a variety of perspectives and scales, but a proper starting point will simply be that of which has started so much else: a single thought.

III. GEOMETRIC THOUGHT NETTING

"Because no man can ever feel his own identity aright except his eyes be closed; as if darkness were indeed the proper element of our essences, though light be more congenial to our clayey part."[1]

How do you capture a visual that flickers through the mind at the speed of electrochemistry? Although one may attempt to split up and overlay components of mental imagery onto the brain's various parallel sensory maps[2], a venture into the neuroscience of internal vision is still a nascent field and is beyond the scope of this book, but a deeper investigation is highly encouraged. See writings on topics such as the retinofugal pathway[3]. Instead, keeping with direct experience will still provide an insightful and palatable framework for the curious reader.

So how might we capture a thought and the window from which it arises? The most straightforward method is to cast upon it a geometric net. An easy beginning is to start 'externally', although it is worth mentioning, as previously noted by Buckminster Fuller, that we never truly see outside of ourselves[4]. Upon taking a look around you, try to focus on a specific object and its boundaries. For example,

in looking at my rectangular computer monitor, I can sharpen my focus on this system by mentally tracing its edges. Thus one may cast a geometric net upon anything in the visual field and subsequently isolate it as a system from everything else outside of the geometrically netted boundaries, i.e. the system's environment.

To move conceptually 'external' to internal, those familiar with the works of writers such as Sam Harris may find familiarity in this, but to reiterate, simply close the eyes and imagine a simple form such as a square or two, as if staring into a Rothko. Closing the eyes blackens the canvas upon which the mind may paint, in order to remove environmental distractions and focus solely on the arising and disappearance of an image. This also allows one to separate a dark 'background canvas' from the 'painting' the image the mind projects onto its canvas. After visualizing a few squares in the comfort of darkness, reopen the eyes to recall the approximately oval or circular window through which the world is taken in. One will also notice how this window blurs towards the periphery. Labeling the boundaries of visualization as a spherical (for simplicity) window of experience containing the flickering form of a square may thus be thought of as a reel of squares arising inside a series of photos with circular boundaries. In the case of visualization in darkness with the eyes closed, one may clearly place an abstracted geometric net over direct

visual experience by seeing how a black circle contains within it the flickering of the imagined square.

If we are to take our series of circular experience windows, each containing within its boundaries a partial representation of our attempt at visualizing a square, and lay out these circular photos in chronological order as if stacking up slices, we no longer have a circle but instead a abstracted 'cylinder' or 'tunnel'. Thus one may think of the mind through time, in terms of direct visual experience, as a tunnel through which energy is both captured externally to help generate the 'background canvas' and released or redirected internally to 'paint'.

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[1] Melville, H. Moby-Dick; or, The Whale, p. 121, 1851.

[2] da Silveira, Rava Azeredo, and Botond Roska. "Cell types, circuits, computation." Current opinion in neurobiology 21.5 (2011): 664-671.

[3] Dhande, Onkar S., et al. "Contributions of retinal ganglion cells to subcortical visual processing and behaviors." Annual review of vision science 1 (2015): 291-328.

[4] Fuller, R. Buckminster. No more secondhand God. Vol. 35. Estate of R. Buckminster Fuller, 1967.

IV. MIND TUNNELS

"The vision of time is broad, but when you pass through it, time becomes a narrow door."[1]

In my opinion, the introductory quote does a fine job of illuminating two important sides of the spectrum of living. Concerning vision, it is in my belief that a primary bottleneck to all goals, ambitions and dreams as broad, individually-unique visions 'stretching out' through time, is the clarity and detail at which the end-point of a dream is internally visualized and then reverse-engineered and broken into manageable and achievable processes that sequentially build upon one another. Furthermore, as earlier mentioned, it is rational to deduce that creative visualization may be practiced and strengthened as an art form in the same way that one might practice and improve upon the ability to play the cello, as both involve the strengthening of specific groups of neural circuity in a habitual manner.

And yet, although one may mentally construct an elaborate and broad vision through time, the momentary constraints of the unfolding of time and space only permit us to experience a small trail of sensory data. The "narrow door" of daily sensory experiences we 'pass through', whether it is one's office environment, the music playlists we most frequent, etc., function with varying degrees of influence as feedback loops that influence our broader visions through time, and thus our goals and ambitions. Therefore it may be important to stay mindful of the impacts of one's surroundings, including which types of environments and peers inspire the most dreams. This may more simply be put as a reminder to always "stop and smell the roses" while passing through the narrow door of time,

in order to construct and run towards whatever broader vision of time elicits the most excitement and joy.

Such also serves as a reminder that our individual, narrow doors of *time* also sequentially follow us around in *space*. In other words, as we walk from place to place, our 'cylindrical' mind tunnels constructed by stacked circular windows of experience through time, leave behind a dissipated trail of hopes and dreams and goals. And thus invisible trails of human dreams encircle the planet and will continue to do so as we search for our place in the ever-expanding big picture.

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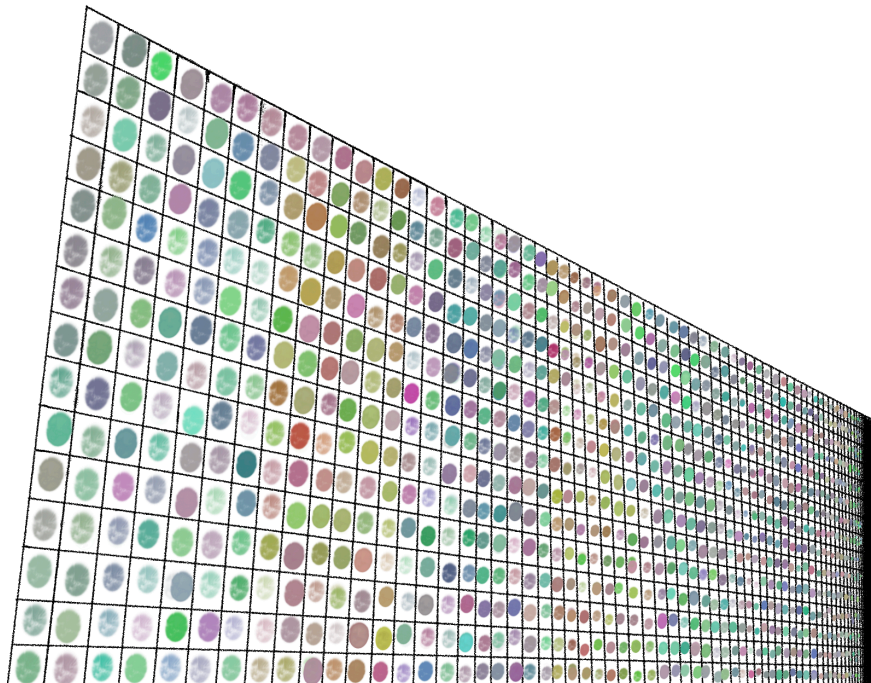
[1] Herbert, Frank. Dune. 1965. Print.



V. "DEFINITION, UNIVERSE"

"Universe is the aggregate of all humanity's consciously apprehended and communicated nonsimultaneous and only partially overlapping experiences."[1]

How might we go about visualizing our individual mind tunnels of direct sensory experience in the context of humanity as a whole? As of this writing, our Earth contains approximately 7.5 billion dynamic human minds. For the purposes of abstract mathematical scaling only, we will start by shrinking each human experience window to be barely visible as represented by a 1/4 of a millimeter circle. We now need to imagine approximately 7.5 billion 1/4-millimeter circles. To do so, simply take the square root of this number (7.5 billion) and the answer of roughly 86,600 becomes the length of a square 'matrix' abstractly representative of all living human minds. In other words, this thought experiment creates a massive two-dimensional square grid of length 86,600 1/4-millimeter units, or 21,650 millimeters, or approximately 71 feet, or 21.7 meters. Thus it requires a square grid that is ~22 meters or 71 feet in height and length to abstractly represent all living human minds on Earth, if each experience window is depicted as a tiny pinhead dot of only 1/4 millimeter in diameter. If at all possible, it is highly

recommended that the reader step outside and attempt this visualization in an area of adequate space.

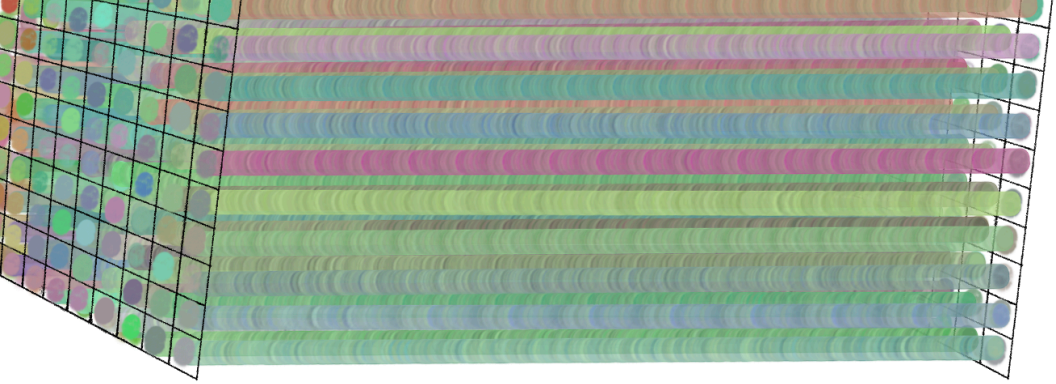
Although this abstraction would be more accurate if we geographically divvied up the 7.5 billion pinhead-sized experience windows and wrapped them around the Earth, such will be excluded for the time being for the sake of A) simplicity and B) technological hyper-connectivity that permits rapid, high-resolution global communication and interaction. Therefore, this 71 by 71 foot matrix of minds is one crude method of representing the experience windows of everyone on Earth at a single point in time. Upon zooming-in on any one of these pinhead-sized experience windows, for example, *yours*, one might imagine a background 'canvas' such as this page and internally generated imagery. For some, this mental imagery can be vividly projected into the space around them. For those who have trouble with this, imagine this practice as augmented reality without electronics.

Now zoom back out to the aforementioned 71 by 71 foot (~22 by 22 meter) matrix abstraction. Not only is this a rough quantitative way of thinking about very large numbers of minds at a single point in time, but it can also be used to think about very large numbers of minds through time. Simply take the giant matrix, or grid as one 2D square at time A, and run it forward to time B. Adding together multiple, sequential square slices of our matrix will allow us to represent the giant square as a giant volume

as a cube. Yet remember that the fine-grained architecture of this abstraction is a great many series of tiny circles at time A that, upon being run through time, turn into a great many series of cylinders or 'tunnels' (stacked circular snapshots) upon reaching time B, as if they are 'dragged' through time. Thus every mind or 'node' at a single point in time may thus be thought of as "dewdrops in a spiderweb" Alan Watts. Each of these 7.5 billion windows of experience entail countless peculiarities and dynamically unfolding dreams and ambitions unique to the minds they are nested into, and yet similarities may also arise when examining the entirety of this human 'meta-mind'.

If stepping back and glancing up at our 71-foot, or ~22 meter grid of 7.5 billion unique instances of mental imagery at a moment in time, and then steadily approaching until finer-grained details emerged, we would likely see something in resemblance to a collage with no particular discernible picture. Each mind-node may also be thought of as a pixel in the grid of the collective human mind. However, we might begin to stumble upon similarities if we somehow statistically analyzed the 'background canvases' among every individual and compared those who are geographically localized, or even more likely, for whose attention is directed at similar events irregardless of location. For example, if millions of individuals are simultaneously watching a live sports game, concert, show, political speech, advertisement and so on, then despite the

differences among each mind, there will be distinct statistical similarities among the visual data composing the canvases of their experience windows. Likewise, although the internal imagery as thought painted onto each canvas would be even more visually distinct among each mind, if we were to attempt a linguistic categorization correlated to the arising and disappearance of each image painted onto each canvas, which often already occurs in real time, then we might also observe statistical similarities among what the human meta-mind focuses on. The most common examples again would be various celebrities and political figures, language corresponding to daily news bites and events, and so on. This of course also emphasizes that the abstraction of the human meta-mind is continually in flux and in its own growth process the same way an individual mind is, and in some sense is like its own form of electromagnetic and electrochemical organism. And in the same manner of how an individual mind or an individual organism may fall ill, so too might this meta-mind if too many thoughts fluctuating through it become fixated on fictitious events or frivolous distractions. And thus a heavy burden of responsibility is placed on individuals and organizations who collect and act on the information that feeds the algorithms that sculpt the directional flows of the collective human mind; our imaginative "universe".



[1] Fuller, R. Buckminster. Synergetics: Explorations in the Geometry of Thinking, p. 189, 1975.

VI. THE FADE TO AND FROM GRAY

"...any particular series of phenomena in which we consciously or even actively participate, if it is repeated over and over again in exactly the same way, gradually sinks out of the sphere of consciousness; and it is only, so to speak, dragged up into it again if, on a fresh repetition, the event initiating the process, or the conditions affecting its continuance, are slightly different, in which case the reactions happen slightly differently too."[1]

The directional flows of both the individual and collective human mind often stay in dynamic flux as humanity continues to scour its "universe" for novelty. Many are aware of this with or without knowing it, and such behavior may be viewed from a variety of angles. For example, let us revert back to the image of an individual's window of experience an approximately circular or binocular window, clearest in the center and blurred at the periphery like a Monet painting. Our environment teems with examples that take advantage of how our window of experience is in a continuous hunt for novelty and thus for something to lock its attention upon. Indeed, we may think of the center of our window of experience, or attention, as continuously scouring its surroundings for visuals that contrast with prior experience.

Advertisements offer up one perfect example. They intentionally provide novelty for the window of attention to fall on. They are traps in space and time that 'collect' our attention as it locks on; traps like quicksand for the middle of the visual experience window to fall on and into. Thus, society often lays out visual traps for the eyes and for the mind's eye to fall into and be distracted by in order to direct one towards a certain behavior. Yet once again, what is it about advertisements that so often catches our window of attention? Advertisements attempt to contrast with our prior sets of experiences. They are a jolt of novelty as we maintain our daily routine, say, in walking through Grand Central towards our usual destination. Of course, those familiar with life in areas such as New York City may be more accustomed to the spontaneous and the strange and the novel. And thus in a similar manner of how many bird species sport a vast array of striking plumage to stand out among the crowd, so too does every billboard in Times Square. Still, even a place as dynamic as this can begin to feel repetitive to locals at times. Why?

A simpler and more familiar example of why this occurs is music. Many readers will have the experience of stumbling across an exciting new song that they may listen to repeatedly. At first, the song is entirely novel and at its most striking. Upon further repetitions of listening, the song becomes familiarized and memorized and although it still may be treasured and enjoyed, the novelty begins to fade unless significant time passes between listening intervals. This simple but extremely powerful facet of consciousness is applicable to almost any set of direct

experiences a human may encounter, whether it is how one routinely interacts with a significant other, or how even the most exquisite of mansions sometimes elicits boredom in its owners and a resultant real estate sale. The sensory data is continually injected into our window of experience and of consciousness until said sensory data starts to feel 'numb' and fall below a threshold that elicits our selective attention; it falls below conscious awareness.

Another way of thinking about this is once again imagining the circular experience window with its blurred, 'Monet' edges through which we perceive the world as an oscillation between colorful and grayscale imagery. The easier, more visual example partially mentioned above is that of moving into a new living space. The mind will use this circular window of attention to scan the environment for details and likes and dislikes, and eventually, the new living space will be mapped in significant detail in the brain as the center of our window of experience scans every nook and cranny. It is interesting to remember that the center of our sphere of consciousness is always darting around in search of the new and may grow restless when it is unable to find it. The environment becomes familiar and no longer surprises us, and thus we become less aware of it and may even forget our good fortune in having such a shelter. Likewise, our surroundings that composed the background 'canvas' of our circular experience window at first likely felt striking and colorful and new, yet upon the repetition of routine in the same living space, may seem as if the imagery of our background canvas fades to gray as familiarity sinks our surroundings deep into our unconscious. This of course

further reiterates the benefits of vacations of splashing a bit of colorful conscious novelty into our canvas when our restless intuition prods us to seek out the new.

As Schrödinger mentions, repeated sensory experiences dipping under conscious awareness makes sense, as it would waste metabolic resources to constantly allocate attention and focus towards external stimuli for which we have already frequently experienced and processed or 'learnt'. And thus the mind stores responses to learnt sensory stimuli that reenter our window of experience, and saves the energy of conscious attention for novel instances for which a reaction is not yet stored. Indeed, "it is only the individual peculiarities in any one ontogenesis which become conscious."[2] Therefore it may also be beneficial to the reader to stay mindful of when one is slipping into unconsciousness or 'fading into gray'. Likewise, splashing some color into the life of others through selfless compliments and acts of kindness may brighten their day in more ways than realized.

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[1] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 85, 1964.

[2] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 93, 1964.

VII. TRAILS OF AWARENESS

"Becoming is conscious, being unconscious."[1]

Stacking up circular windows of experience, each at *one* moment in time, in order to represent direct visual experience *through* time, results in 'cylindrical' mind tunnels that stretch out behind us in the past. These tunnels are still blurred towards their periphery and clear down their center, as if depicting the middle of the tunnel as clearly in focus, and the outer ring of the tunnel as blurred and dreamlike; the 'Monet'. This is one way to curiously imagine how each individual leaves behind them a trail of thoughts in time and space like a "comet's tail" (Alan Watts), while at a single moment in time, this trail of thoughts becomes more deeply interwoven into memory for later recall.

Now let us reimagine our earlier depiction of the fade in and out of gray, and thus the splashing of colorful novelty into the mind, in the context of this spatiotemporal abstraction of direct visual experience. Certain experiences that we leave behind us in time will stand out more vividly. Upon recall of how the mind serves as a watch post for novelty, the moments it encounters which most notably contrast or differ from prior experiences can be referred to as differentials. Our mind tunnel through space and time therefore contains within it a trail of captured differentials

as if leaving behind a trail of breadcrumbs that correspond to moments of heightened consciousness. Therefore this might almost literally be referred to as a trail of awareness or consciousness, dotted by moments where sensory outliers are captured by the mind and flagged as differentials while being tested against memories and thus prior experiences. A 'trail of becoming'.

It may be of interest to the reader to peer back down one's memory tunnel through time, or abstractly glance at it perpendicularly, to think about which experiences made one feel most alive. Which experiences brightened the mind tunnel with 'color' (literally or figuratively) while it otherwise continuously hammers in and buries memories and gradually fades them to gray under conscious awareness? It may be beneficial or at least interesting to pluck out the most vivid memories from one's mind tunnel, weave them together sequentially and chart a more exciting future based off the 'direction' of these individually-unique moments. Differentiate down onto these beautiful experiences and integrate a new future off of them.

Of course, repetition will still permeate our lives, and a human mind becomes a stable and sustainable system when it is able to regenerate itself based off of repeated responses to repetitive external situations. The goal here is not to undermine routine or stability, but simply to try and ensure the imagery continually flickering into and out of

our canvas of visual experience does not stagnate and lull us into waking sleep.

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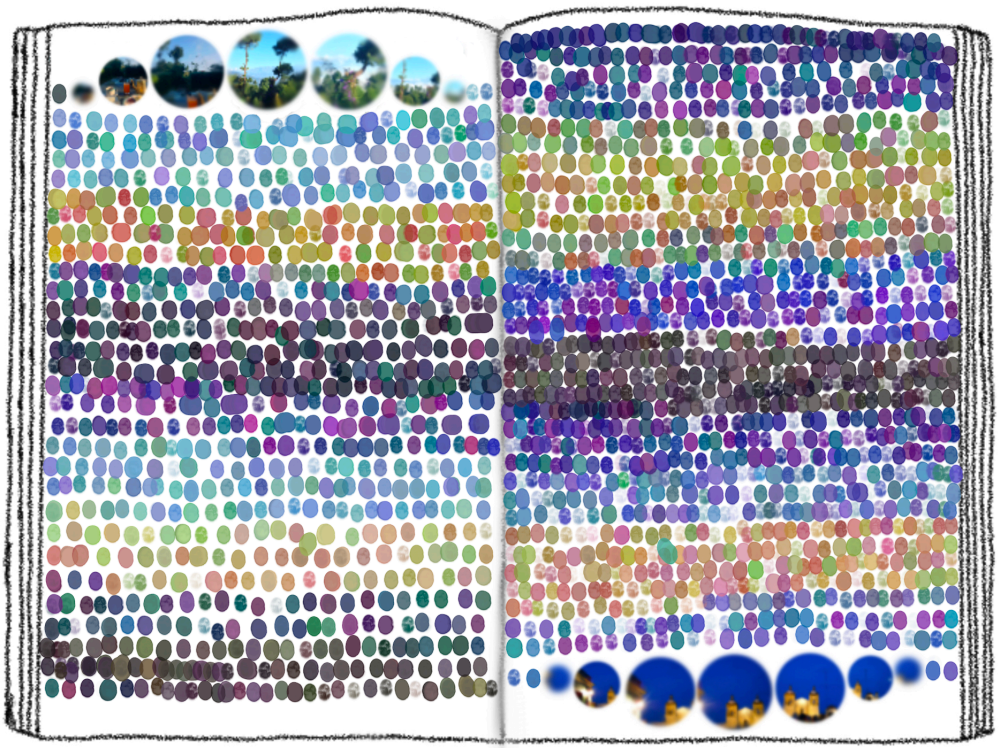
[1] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 94, 1964.

VIII. BOOK OF YOU



In order to try and both personalize and simplify the abstraction of dragging out one's mind tunnel through space and time, try to imagine it lining the pages of a scrapbook. If your mind was a camera that was connected via bluetooth to a printer, which printed out semi-circular pictures of your experience window every few seconds, minutes, hours or so on, you could gather each circular photo and paste them in sequence in a continually expanding 'book of you'. Large portions of the book would be dark at regular intervals as you fall asleep, blacken the mind's canvas and paint it with flickering dreams. And then suddenly at the end of each chapter of sleep, light would flood the pages again as the gears of your daily routine spin into motion. This brings up a variety of intriguing questions, such as what backgrounds would you like to permeate the pages of the book of your life? If our minds carry resemblance to computers, our surroundings are in some sense like the backgrounds and/or webpages we surf. The background we select, or which is selected for us, may have both direct or subtle influences on our thought processes. This raises intriguing and important questions, not only on ways to think about tailoring one's own life, but also on how to think about socioeconomic situations of inequality. Before going farther, though, we will pursue further generalizable abstractions that will allow one to think about thoughts as a system irregardless of neuroscience background.

IX. A SYSTEM OF MIND

"Reality is the special case, episodic, high frequency recall of like experiences within our individual scenario lives. Reality is nothing but high frequency recurrence of the awareness of a dominant generalized principle remanifesting itself in our special case awareness sequences."[1]

How systems of thought unfold differ dramatically from person to person, and situation to situation. Yet the practice of encapsulating components of experience into visually intuitive subsystems allows us to use the commonalities of direct experience break down interpersonal differences and remind one another that we are all much more similar than we may appear or act.

It is simple to imagine any human mind as a photograph reel running at approximately 60 frames per second[2], where each photo snapped every ~1/60th of a second is clearest in the center and blurred at its edges. The clarity of the center of our window of attention is in part due to the fovea in the retina and its high concentration of light sensitive cone cells, as well as how the foveal region in the retina is magnified in the brain as compared to peripheral retina[3]. This also means that items in the center of your window of attention, such as these words or a striking advertisement, are mapped across your brain in greater detail as compared to words at the periphery of your

vision. Loosely stated, the middle of the back of the human eye has a higher density of 'pixels' than the surrounding areas, and thus photos generated on this 60 FPS reel are clearest in the middle. As mentioned previously, this writing aims to take an abstracted philosophical perspective, but a deeper investigation into visual neuroscience is highly encouraged. For the time being, taking the perspective of direct visual experience through a 'circular' window permits the teaching of more complex abstractions through space and time.

In reverting back to a circular photo frame of vision that serves as the mind's 'canvas' for which it may 'paint' upon, and for which when run through time becomes a series of stacked snapshots creating a 'tunnel', we can now use this abstraction to isolate such a mind tunnel as a system having imagery that flows in and out. It retains its approximately circular (one window snapshot) or cylindrical (many stacked snapshots) geometry over time and may thus be isolated as a system of experience for deeper self examination. The experience window or canvas aspect of the system maintains stability of geometric form while the imagery painted upon it by the mind is dynamic. If something exists as a definable system, there historically was more local energetic importing than exporting. Likewise, we may think of ourselves as locked into the present by imported or sensed energy that flows in, which tethers our system to the future, and exported energy or outflow that tethers our system to the past.

Despite the rapid fluctuations of form induced by visual thinking, one may still attempt to varying degrees to

hold a distinct form in the visual field, or project a form in the visual field, such as our previously imagined Rothko squares. Despite the transience of a distinct visual thought, it still arises and disappears and proceeding its inflow and before its outflow, it may be geometrically netted into an isolated subsystem. Upon doing so, we can practice adding detail to the imagery painted by the mind, holding it in place for longer periods of time, rotating it, and so on. More specifically, we may manipulate the imagery painted onto the mind's canvas by taking the visuals that arise in our circular window and practicing the following:

A) Trace outlines
B) Hold in place
C) Zoom in
D) Zoom out
E) Rotate
F) Translocate
G) Increase resolution or granularity
H) and so on.

Further practice of these examples of what one may do with mental imagery will be left to the reader, and a relatively simple example of item G) will be offered. To visually increase the 'resolution' at which we can see and understand vision itself, take the retina in the back of the human eye and imagine it geometrically as if it was like a small radar dish collecting light. This radar dish is compartmentalized into light-sensitive cells acting almost like pixels. If we take this radically simplified abstraction of the millions of light-sensitive cells that compose the retinal 'radar dish' and enlarge them from their size of

approximately two micrometers, now to 1/4 of a millimeter, then the retinal radar dish is now on the magnitude of ~2.75 meters or ~9 feet in width (normally about 22 millimeters in diameter in the back of the human eye). In visualizing the geometry of a radar-dish-like form ~9 feet or ~2.75 meters in width, composed of millions of tiny compartments of only ~1/4 millimeter in diameter, we are able to increase the granularity and the resolution of our understanding of the retinal system. We increase the clarity of our mental image, even with an abstraction that is nowhere near as close in its detail to the actual object. And thus applying visual thinking to the results of scientific exploration better illuminates the beauty of nature for which we so often take for granted.

The above also highlights the importance of simple scaling exercises for understanding complex topics. Very often, levels of detail of a system are excluded or thought of discretely due to being outside the scale of direct human sensory experience. If we cast a geometric net over multiple levels of a system and magnify both scales with the same factor to be large enough for all system levels of focus to be more visible, we quite literally bring to light new details. Normally, the size of the retinal 'radar dish' of around 22 millimeters on average is large enough to be imagined easily, while the light-sensitive cells it contains are too small to lie within direct experience unless intentionally scaled up into it. For further interesting examples of this, see the work of David Goodsell, such as *The Machinery of Life*, or the solar system scaling projects by Wylie Overstreet and Alex Gorosh.

Thinking in such a manner will also serve useful when contemplating the hierarchies of scales influencing the thinking process itself. It is important to reiterate that the systems the mind geometrically outlines at a point in time, whether one or multiple scales are in focus, are locked between future and past through imported and exported flows, respectively. It is equally if not more important to return this focus to our approximately 'circular' visual window or 'faucet' of experience from which this type of thinking flows from in the first place, for it permits deeper introspection over the clarity of painted imagery and of thinking itself. Likewise, the mind and brain serve as a fascinating example of the resilience of biological systems. Schrödinger once noted that the components of inorganic systems often contain very generalized, repetitive or 'loose' interconnections and therefore the "same elements may constantly undergo *changes* in form, unless bound together tightly."[4] In contrast, elements of organic systems tend to contain a variety of components while maintaining the *same* form, e.g. a bird maintains the form of a bird while a rock or river may take on a variety of forms. Intriguingly, the brain and in particular the human brain, seems to possess qualities of both. This is illustrated in returning to our abstraction of direct visual experience, as the approximately circular window through which we see the world and canvas for which the mind paints, maintains its general form while the paintings of the mind may take on many.

When making a habit of continuously returning awareness to abstractions geometrically outlining the space from which thoughts arise, one will also come to notice that

this space serves as a node or point of connection between any system the reader can imagine. Thus, any visual painted onto the canvas of the mind, whether it is representative of electron orbitals or planetary orbitals or anything in between or above or below, is still a form splashed onto the experiential outpost of the mind and of the brain and is thus linked together through experience. Mindfully thinking about systems in a visual way is therefore a powerful method of bridging the gap between any series of differing thought cycles, or put more poetically by Schrödinger:

"It also happens that, when attention alternates regularly between two separate fields of ideas, long continuous chains can exist side by side in the same intellect, almost without contact with each other. If contact is established (which not infrequently leads to important new insights) what happens then bears a very strong resemblance to a lively interchange of ideas between two different individuals."[5]

The canvas of the mind is the first linker between any thought chain and allows multiple chains to be actively compared side by side, as if encouraging conversation between differing individuals at a social. And it is thus the act of attention for which in some sense becomes the tutor or socialite 'entity', spinning novelty into being:

"As the foreman of a spinning mill, when he has set the hands to work, goes round and notices here a spindle that

has stopped or there one that creaks or makes more noise than it should, and hastens to check the machine or set it in proper motion, so Anna Pav- lovna moved about her drawing room, approaching now a silent, now a too-noisy group, and by a word or slight re- arrangement kept the conversational machine in steady, proper, and regular motion."[6]

Upon developing a practice of paying closer attention, one may not only find unexpected spatial and temporal linking points between separate systems of thought, but one may also notice that their mental paintings are most vivid at certain points of the day or upon being subject to certain stimuli, e.g. specific inputs from their environment.

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[1] Fuller, R. Buckminster. Synergetics: Explorations in the Geometry of Thinking, p. 553, 1975.

[2] Schrödinger, Erwin. What is life?: With mind and matter and autobiographical sketches. Cambridge University Press, p. 132, 1992.

[3] Adams, Daniel L., and Jonathan C. Horton. "A precise retinotopic map of primate striate cortex generated from the representation of angioscotomas." Journal of Neuroscience 23.9 (2003): 3771-3789.

[4] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 80, 1964.

[5] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 68, 1964.

[6] Tolstoy, Leo. War and peace. Simon and Schuster, Inc., 1942

X. LIFE AT THE REINS OF A METABOLICALLY REGENERATIVE EXPERIENCE WINDOW

We may often become so lulled into waking sleep through repetitive cycles of experiences, of which can amplify the desire for instant gratification or bursts of novelty, that we neglect to pay attention to the more subtle influences that literally *fuel* these experiences. In referring to the earlier mention of merging separate chains of imagery and ideas within the intellect, one pair often neglected but of notable importance is that of metabolism and its merger with abstractions of direct experience. Since our windows of experience are always turned 'on', whether awake or asleep, it may be easy to forget that the 'on' or 'alive' switch is held in place by food and water. Our mind thus rides atop flows of blood that circulate fluctuating waves of metabolites that stir the electrochemical creative engine underlying our thoughts. Since the continued presence of our experience window is regenerated by inputs of food and water, it is thus referred to as a 'metabolically regenerative experience window', replacing an approximate inversion by Buckminster Fuller referring to the brain and body; the "metabolically regenerative experience *vector*"[1] (that collects and carries said experiences).

You are literally what you eat (and drink), and although the form of the body is more resilient in how it is

altered by nutrient flow, the mind and its creations may be perturbed more rapidly, for example upon consumption of coffee or alcohol. This is also why many productive individuals schedule challenging tasks at certain times of the day. It is important to note that there is no specific formula for what balance of nutrients best spins the creative photo reels of the mind, and significant variance is expected among individuals and cultures and environments. Simply continue to optimize and personalize, without neglecting the delightful richness of sensory experience that taste can offer!

Linking metabolic flows to direct experience is also useful in thinking about the self through varying points in time and for remembering that we are absolutely entangled in webs of invisible interconnections for which we take for granted. For instance, I know that my mother consumed large quantities of peanut butter while pregnant with me, and thus the proteins and lipids and carbohydrates derived from this simple food source composed a considerable percentage of the earliest stages of the form of my embryonic body. Before these peanut butter molecules were self-assembled into the building blocks of the tiniest versions of myself, they sat quietly in a jar behind a colorful label on a store shelf, and before that, these 'little pieces' of my being lay humbly hidden in the dirt as they grew distributed across a farm, and so on may my body be traced backwards through countless instances of organic life. It is humbling to remember that we were all microscopic and widely distributed once.

This intellectual thought-chain merger of a metabolically regenerative experience window may also be used in looking forward in time, as many individuals already do. We often have images of ourselves in our minds in the past and present, and images of who we would like to become in the future. Shifting our daily metabolic flows may serve as one method of helping us 'reel in' future images of self into the present, as will be expounded upon later. Yet the simple connection between the necessary regeneration of our experience window via metabolism is also important because it serves as a powerful reminder that the mind is continually wound into being through flowing 'rivers' of metabolites and thus rivers of *molecules*, of which are rivers of aggregated *atoms*. And from here bursts a near-infinitum of space for creative and scientific exploration and understanding, said no better than from physicist Richard Feynman:

"If, in some cataclysm, all of scientific knowledge were to be destroyed, and only one sentence passed on to the next generations of creatures, what statement would contain the most information in the fewest words? I believe it is the atomic hypothesis (or the atomic fact, or whatever you wish to call it) that all things are made of atoms — little particles that move around in perpetual motion, attracting each other when they are a little distance apart, but repelling upon being squeezed into one another. *In that one sentence, you will see, there is an enormous amount of information about the world, if just a little imagination and thinking are applied.*"[2]

Aggregating certain types of generalizable abstractions may also be thought of as a methodology of assembling knowledge, and two drivers in transforming knowledge into wisdom previously emphasized by Schrödinger were also in agreement with Feynman. These in summary are 1) deep curiosity, that drives the individual to enter a continuum of visually and intuitively understanding that 2) all matter surrounding the individual, including the individual, is made of approximately the same stuff (atoms; fluctuating particle aggregates and energetic interactions)[3], which becomes increasingly difficult to differentiate or isolate with increasingly smaller scales.

Aggregating these generalizable abstractions around direct experience may thus be thought of as a methodology of assembling self awareness. And therefore one primary avenue of linking generalized abstractions of atomism, systemically tethered to physical reality, to self-awareness is through an intuitive understanding of the intermingled effects of waves of cyclic metabolic flows on the mind that may only be understood through the trials and tribulations of direct experience, e.g. assessing the clarity of thought and strength of focus after eating a balanced meal, versus consuming an entire cake or large volumes of alcohol. In other words, it may be worth paying attention to the types of flows inputted into the body, of which regeneratively constitute the 'soil', 'clayey part', or 'nutrient bed' for a continuously flowering mind.

[1] Fuller, R. Buckminster. Utopia or oblivion: The prospects for humanity. Estate of R. Buckminster Fuller, 1963.

[2] Feynman, Richard P., Robert B. Leighton, and Matthew Sands. Six easy pieces: Essentials of physics explained by its most brilliant teacher. Basic Books, 2011.

[3] Schrodinger, Erwin, and Erwin Schrödinger. 'Nature and the Greeks' and'Science and Humanism'. Cambridge University Press, 1996.

XI. IMAGE IN BLOOM

"[The brain]…is that part of our soma in which we are engaged in the further evolution of our species; it is, to employ an image, the growth-shoot on our stem."[1]

"Growth takes place through a kind of metabolism."[2]

Although the mind stays in a state of growth, the diversity, complexity, novelty and beauty of forms that may grow are often overlooked but are sure to blossom with proper care and water and patience. Thus the imagery painted onto the background canvas of the mind, or projected onto the 'circular' experience window, may also be imagined as growing a dynamic pattern and sculpting it accordingly, as if pruning hedges. The internal image in the mind tends to experience a kind of pressure to continuously reform itself into new patterns, and the resistance to pattern reformation and reorganization through time, in order to sculpt and regenerate the particular unfolding process of a form of interest, is a visual method of thinking about thinking. The imagery is both a part of the individual, as is the adjacent mechanisms which 'hold open' the unfolding pattern of thought, allowing a form of interest to grow and bloom. Thinking is thus an organic process and is not entirely unlike a kind of birth.

The mind is therefore locked in a continuum of rebirth that allows us to be both sculptor and sculpted, ""blueprint, builder and material,"[3] and if we do not fall too

heavily into distractions and maintain focus, the mind may grow more complex and mesmerizing forms and generate insights about ourselves, others and our surroundings in the process through the accumulation and aggregation of systemic details. In other words,

"The conceptual process is never static. Thinking does not consist of the insertion of invented images into an otherwise empty vacuum-tube chamber called brain. Thinking is the self-disciplined process of preoccupied consideration of special case sets of feed-back answers selected out of the multitude of high-frequency alternating transceiver brain traffic."[4]

Thinking is about decluttering the mind through time to allow internal imagery to grow in a certain type of way, and awareness of this fluctuating brain traffic is key if one is to nurture the desired pattern unfolding process. Indeed, "if we seek one word that most succinctly identifies the experience we call life, it is awareness."[5] An alternate way of thinking about this is that because the forms grown of the mind stay in flux, they remain constantly vulnerable to being steered in random directions and derailed via distractions. Certain tendencies or urges to unproductively shift focus can be thought of as the emergence as a 'crack' in focusing the mental stream of thought that spills our imagery or as an unproductive 'mutation' in one's chain of internal visuals. Awareness of these mutations in mental imagery could thus be extremely helpful in preventing their takeover of an otherwise desirable chain of thoughts. Yet

another visual is that of stacking a house of cards, where practice permits one to place finer and finer details without toppling the overall structure. Adding on to this was our previous transgression into metabolism, as some individuals may find that certain behavioral patterns and combinations better facilitate the growth of imagery, such as pairing a balanced meal with walking and music. Individuals may come to find that they stumble upon and are able to more vividly 'paint' new imagery that leads them down new, more joyful and more exciting tunnels of experience.

Indeed, the mind's canvas and paintbrush may double as a kind of 'steering wheel' or pair of oars that not only direct the flow of thought but navigate the body to and fro experiences of interest, which in turn splash new form and color onto the mind's 'background canvas', thus inspiring new cycles of thought and greater degrees of experiential customization. How do you wish to paint the walls of your mind tunnel, and who would you like to see reappear inside it? What sounds and foods and other aesthetics inspire your daily motions?

Living and thinking thus involve a complex kind of feedback-oriented navigation, and the degree to which we navigate weighs heavily upon awareness of these tools of creation, lest we unknowingly allow others to take the wheel for us. On the other hand, upon encountering instances for which we are at present unable to escape or change or control, it may also be helpful to remember to "row, row, row your boat, gently down the stream, merrily merrily merrily, life is but a dream."

Whether or not we take the 'reins' and steer and mold the imagery painted onto our metabolically regenerative experience window, or permit it to flow freely, also finely marks the contrast in the abstract of orderly versus entropic systems, i.e entropy loosely being defined as "anything that is not chaos, anything, in other words, that is improbable. It consists of structures. ...continuously increasing complexity of organization..."[6]. The mind is therefore capable of billowing-up and 'holding onto' visualizable order out of a sea of chaos; of precisely patterning waveforms onto the surface of the mind's 'pond'.

Upon stretching out this mental, circular 'pond' at a moment in time, into a cylindrical 'stream' through many moments of time, we may also notice that the navigational process of thinking allows us to defy the limits of scale and see the invisible. As put by Buckminster Fuller,

"As the exploring navigator picks his channel between the look-out detected rocks, the intellect picks its way between irrelevancies of feedback messages. And as the navigator realizes secondarily that the channel winds between two sets of rocks, the rocks to starboard and the rocks to port, intellect also discovers secondarily that all the irrelevancies of feed-back information have inadvertently fallen into two main categories, as follows:

1. Experience events which are too large and too infrequent to have considerable frequency significance in-

tuneability in respect to the modular magnitude ranges under consideration.

2. Experience events too minuscule of wave module and of too high frequency to in any way be significantly tunable into the considered spectrum range."[7]

Casting geometric nets over a system of study not only defines system boundaries and facilitates the tuning-out of process irrelevancies, but also allows us to more fluidly navigate reality 'beyond' these scalar irrelevancies. Using the mind's paintbrush to geometrically cast a net over the boundaries of at least two scalable points in a system allows us to 'reel in' systems that lie outside the range of human sensory experience, as either too small or too large. For example, one may cast a net over, reel in, and magnify a microscopic system by scaling nanometers and microns into millimeters and meters, respectively, as previously mentioned with the retina. Geometric nets may also be cast over very large systems, as when compressing a kilometer- and meter-scale system to centimeters and fractions of millimeters. For example, if the Earth was shrunk to a diameter of only 0.25 millimeters, the Sun would be ~10.9 centimeters in diameter, and the distance between them would span nearly 10 feet or ~3 meters.

Such a practice may additionally be applied to slow down or speed up instances of time (system behavior) in the same way one would magnify or shrink regions of space, as behavior is indeed just instances of space through time. In the example of the Earth and Sun earlier, when scaled

down to be roughly 3 meters apart, if scaled in proportion the time at which the Earth completes a full rotation around the sun would decrease to over 1,600 rotations per second. Such an exercise helps bring a tiny fraction of our universe down to the scale of human experience. This ultimately aids the great human endeavor of understanding self, others and environment by providing the mind with frameworks of rationality that permit it to stream through essentially unlimited sets of possibilities, thus freeing itself as information from the confines of our own place in space and time.

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[1] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 93, 1964.

[2] Boulding, Kenneth Ewart. The image: Knowledge in life and society. Vol. 47. University of Michigan press, pg 18, 1956.

[3] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 53, 1964.

[4] Fuller, R. Buckminster. No more secondhand God. Vol. 35. Estate of R. Buckminster Fuller, 1967.

[5] Fuller, R. Buckminster. Synergetics: Explorations in the Geometry of Thinking, p. 1,342, 1975.

[6] Boulding, Kenneth Ewart. The image: Knowledge in life and society. Vol. 47. University of Michigan press, 1956.

[7] Fuller, R. Buckminster. No more secondhand God. Vol. 35. Estate of R. Buckminster Fuller, 1967.

XII. WRITING THE BOOK OF YOU

"...sitting at the edge of a giant ocean, trying on a version of the future..." Michelle Obama[1]

"Of course there are two oceans, the shadow and the truth, the one outside the window. And the one inside of you." *Orca*, Until the Ribbon Breaks

One often sees in the description of control systems the function of driving error to zero by matching system input with output, thus moving the difference between input and output to zero.[2] The mind in the context of the continuum of goals it generates may be thought of in a somewhat similar fashion. We form an internal image of something we wish to experience, or of someone we want to be, and as if 'casting out' a philosophical north star into the future, begin a stepwise series of actions of which 'reel in' the internal image. These actions therefore either rapidly or gradually help to align the internal image at one point in time with our experiences at a later point in time, thus driving the difference between what the mind sees at one point in time and what it experiences at a later time, closer to zero. This in a sense explains the rapid flourishing of systems such as video games that promote 'instant' gratification. Of course, it is often the case that goals stretching out over longer periods of time, requiring

significantly more 'navigational dedication', yield much more interesting and/or rewarding experiences. Additionally, goals stretching out over longer timeframes may be bundled into 'milestones' which form localized collections of experiences in space and time representing significant progress towards a goal. Thus the trick is to take the reins of the metabolically regenerative experience window and steer towards whatever philosophical north star elicits excitement and joy and love, and perform cycles of actions of which steadily 'reel in' these localized collections of experience, bringing the difference between what the mind simulates and what it wants to experience closer to zero.

It may also serve as a helpful reminder that there are often a variety of 'mind tunnels' one may experience while working towards the same goal, so it is often wise to leave significant room for error or temporary 'path derailings'. Still, the more clearly and granularly visualized these cycles of steps towards a goal are, as well as the adjacent possibility streams or tunnels of experience that flank them like different tributaries ultimately leading into the same river, the smoother the trail into the future towards the philosophical north star is likely to be, as if partially clearing the pathway before walking it. Likewise, differing paths take different amounts of time to trek with differing rewards along the way, and thus it may be beneficial to be mindful that some journeys are exponentially swifter than

others towards an end-goal, but longer journeys may be equally if not more rewarding. In other words, *see* your plans of action as clearly as possible if you wish to synchronize internal imagery at a point in time with a set of experiences at a later time, but plan for surprises and have fun along the way.

The initial generation of a future goal or purpose in the mind may thus be thought of as projecting a series of tendril-like tunnels or possibility streams into the future, of which 'pull' the individual towards them down tunnels of experience. This kickstarts a trial-and-error form of mental-physical relay. More specifically, this mental-physical relay is resultant of external energetic transformations captured and packaged by the senses and reprocessed and translated into internal energetic transformations, and further reprocessed again into externally-redirected energetic transformations via the motions of the body, be it walking, speaking, or writing this sentence. Each of these recapitulated (external-internal-external) energetic transformations incrementally moves the person forward towards the goal/purpose in an almost ratchet-like motion, and the rapid advancement of technological progress aims to accelerate this process even further by the likely reduction and/or removal of the physical component of the mental-physical relay. Coupled tightly to this trial and error process are thus self-awareness and rapid learning, hopefully fueled at the core by joy and love.

Also, although this perspective on goals and purpose has been future-directed, navigating into the future of our experiences is weighed upon by the recurrent imagery of the past, although periodically calling awareness to this may help the individual determine how heavy past experiences should influence them. Yet another quote from Buckminster Fuller will be recalled for this phenomenon:

"Because of the varying depths of storage of past experiences, some answers come back swiftly, some slowly. The recollect ability rates are unpredictable. The returning-answers traffic is heterogeneous. Many answers come to questions we have forgotten that we have asked."[3]

In addition to the answers of previously asked questions, we will come to find that the mental imagery representative of our future goals rapidly falls out of conscious awareness and into the realm of past experiences that must be continually recalled. This further serves as another reminder to the importance of dedication to goal and purpose; as the imagery representing our future-goals fluctuates in and out of our window of experience, it may feel as if it becomes less striking or exciting upon an increasing number of repetitions as if it is 'fading to grey', as poetically worded by Schrodinger:

"The real trouble is this: giving expression to thought by the observable medium of words is like the work of the silkworm. In being made into silk, the material achieves its value. But in the light of day it stiffens; it becomes something alien, no longer maleable. True, we can then more easily and freely recall the same thought, but perhaps we can never experience it again in its original freshness. Hence it is always our latest and deepest insights that are *voce meliora*."[4]

To combat this process, it may be helpful to develop a practice of generating a continuum of dynamically unfolding goals leading to ever greater purpose. It furthermore could be useful to be mindful of when one becomes derailed of their work towards a goal or greater purpose by the arrival of internal visuals which 'pull you' into external visuals constituting undesired activities, such as internal imagery that flutters up and coaxes one into buying something unnecessary, playing video games for too long, and so on. The arrival of undesirable visual thoughts may thus in some ways be thought of like the flicker of a flame to a fire for which we do not desire to ignite, and in such an instance one may call upon the abstraction of 'stamping out the embers' to subdue and navigate away from internal visuals that drive habits or behaviors we would prefer to avoid. Still, do not confuse this metaphor with dampening the fire of the human spirit; it is only

meant as a way of mindfully subduing and redirecting the arrival of an undesirable visual flame, into a new spark that lights the way down a tunnel of experiences we genuinely wish to pursue.

Abstractions are powerful because they help to logically compartmentalize and simplify the otherwise enormous complexity of the reality we navigate, and yet it is also useful to practice increasing the resolution and complexity of the imagery generated in the mind, because new layers of understanding may lie just beyond what we see. One useful example of layered abstractions of the mind comes from Kenneth Boulding in *The Image*[5]. He layers the imagery of the mind as follows:

1. Spatial image
2. Temporal Image
3. Relational image
4. Personal image
5. Value image
6. Affectional image
7. Conscious, unconscious and subconscious image ‘
8. Certainty vs uncertainty, clarity or vagueness
9. Reality vs unreality
10. Public vs private image

Such a layering of abstractions relevant to the imagery spun into being by the mind’s photo reel may serve as a useful series of visuals to cycle through to practice

improving the detail of internal visualization. Starting with 1) as the spatial image, imagine you were looking down upon yourself from a birds-eye view to more clearly see your location in space. Now run the imagery of 1) though time as you move around your room and spatially trace every location for which your body occupied; dragging '1)' through time, since system behavior is occupied system-space through time, results in 2) the temporal image. For the relational image, note that as your birds-eye view figure moves about the room, many objects remain stationary, and other sensory experiences repeat themselves in cycles, such as sleeping and waking or habitual routes to work. Such forms a network of relationships that allow one's reality to remain stable enough (typically) for this internal image of relationships (3) to feed back onto and into the mind and one's direct experiences to construct (4) the personal image, which constitutes the continuum of aggregating experiences interacting with the network of relationships in specific locations in space and time that separates self from other. How such an aggregation of sensory experiences in space and time imposes value and emotion on this network of stable, semi-stable and unstable relationships and experiences (broadly stated) results in the (5) value and (6) affectional components of one's internal imagery and concept of self. I will leave the reader to generate their own imagery for the remaining layers, as the value and emotion

placed on our sensory experiences is worth a deeper examination.

Boulding noted that "the act which stands highest on the ordering will be the one performed, and as soon as it is performed, a new ordering comes into view, and a new act is selected." Very loosely stated, a surprising relevant abstraction is that of the Pez dispenser. If we were to imagine the photo-reel of imagery continuously being spun up into conscious awareness, spun up into our metabolically regenerative experience window (or mind tunnel if seen through time), then we may additionally imagine that many of these appearing and reappearing images are correlated to some kind of value and emotional 'rank', some of which are further linked to behaviors and feedback we receive, likewise ranked. Here it is important to elicit a reminder that feedback we receive from our actions may often have significant temporal delays to the time at which the behaviors were performed, thus further serving as a warning to avoid the bias of 'immediate' gratification. Thus whether conscious or unconscious, the mind contains a ranking of 'stacked' or layered actions our mind continually dispenses like Pez treats for us to perform like a series of steps in a dance, based on which behaviors are most important to us and for which instances of feedback we find 'sweetest'. This was more elegantly stated by Tom Robbins, in noting how "…all human activity was cosmic theater: a grand and goofy and epic and ephemeral show, in

which an individual's behavior, good or bad, was simply the acting out of a role, the crucial thing being to stand back and observe one's performance even as one was immersed in it."[6] Here we inject a reminder into our cyclic experiences to step outside of ourselves and ask how we might be perceived if the universe was watching. Furthermore, what if the universe was *listening*?

Although philosophical abstractions centered around internal imagery and direct visual experience are the focus of this writing, it is important to temporarily digress into internal chatter, because we may often find that (tightly or loosely) coupled to our visual photo reel are strings of language. In some cases, our internal voice(s) may derail our thinking or may provide a scaffold upon which we may more orderly assemble complex visuals. It is also all too common to become lost in streams of narration or casual commentary on our surroundings which subsequently controls or stunts the growth of our internal imagery, and thus whether or not we break or silence these linguistic chains, or more strongly couple them to our visual photo reel simply depends on whether our internal chatter is bringing us joy or making us miserable. It may be of particular importance to not stumble down into, and become stuck in, the quicksand of spiraling complaints!

The mind ultimately navigates forward through a meshwork of experiences via a combination of visualizing past and simulating future in the present, juggling energy,

and honing towards or away from behavior and experiential feedback cycles that elicit happiness (broadly stated). Our goals and purposes and dreams are often as or more dynamic than the cycles of internal imagery upon which they are generated, although it may be valuable for the mental visuals constituting larger, longer-term spatiotemporal points in goals to be more robust while shorter-term goals stay in a more rapid state of flux. Many individuals also enjoy living by the pursuit of more separate experiences that elicit joy, love, and so on, even if they are not directly tethered to checkpoints towards larger goals, although the pursuit of happiness in itself may be thought of as such. Generating layers of abstractions around the mind further allows us to revisit the previous abstraction of the 'book of you', where circular snapshots from the metabolically regenerative experience window, containing both external imagery (background/canvas) and internal imagery ('painted' visual thoughts), are stretched out side by side as if constituting the pages of a book of everything we see, inside and out. And beneath these snapshots we may now include lines of text pertaining to our internal voice(s). If we presented the book of our lives to our younger selves in the past, what would we think of the story? For "only when our whole image, as it were, is capable of being spread out before us, can we organize it as a unit." From this, it may be helpful to 'dance' upon the cosmic theater as if both nobody and everybody was watching. And dance in

the direction that 'carves out' the mind tunnel of experiences for which brings happiness to self and others.

Lastly, it is important to issue a reminder that although it may be useful to step back and observe the 'show' we perform for the universe, creating an image of self and of desired experiences, when thought of from direct experience, e.g. from the perspective of one's unique metabolically regenerative experience window, actually becomes just as accurate when we also remember to remove ourselves from the picture and stream experiences through the 'tunnel' the mind travels through space and time. This allows one to more easily hop into and understand the viewpoints and perspectives of others. What types of interactions with others results in your experience window receiving and collecting genuine smiles? Thus while looking at oneself in the mirror, it may be beneficial to also consider that the social world of interactions is itself a kind of mirror, laden with all the beauty and bias of humankind.

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[1] Obama, Michelle. Becoming. Crown Publishing Group (NY), 2018.

[2] Nise, Norman S. Control systems engineering. John Wiley & Sons, 2020.

[3] Fuller, R. Buckminster. No more secondhand God. Vol. 35. Estate of R. Buckminster Fuller, 1967.

[4] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 23, 1964.

[5] Boulding, Kenneth Ewart. The image: Knowledge in life and society. Vol. 47. University of Michigan press, 1956.

[6] Robbins, Tom. Fierce invalids home from hot climates. Bantam, 2001.

XIII. A WORLD OF MIRRORS

"We are dealing here with a world of mirrors and it is often hard to see what is being reflected."[1]

Although repetitive, it is a useful practice of using the mind to cast an approximately circular geometric net over the window of experience from which we take in the world, and remind ourselves that ' within and underneath' this, from retina to cortex to heart and back are fluxes of metabolites pumped up into the brain which continually regenerate the machinery that maintains our ability to experience a background canvas from which the mind may paint its imagery upon. Expanding upon this, we once again remind ourselves that the world from the perspective of the human mind *en masse* thus in part consists of billions of 'circular' metabolically regenerative experience windows locally collecting and importing snapshots of visual data while simultaneously exporting visual data in the form of internal visual thought-projections, ultimately unfolding as a series of snapshots or experiential 'mind tunnels' through time and throughout many lifetimes. Yet although the visual system in this manner can be approximated across the majority of humanity, excluding various cases of pathology, it is experienced and thus unfolds very differently based on the external appearance of the body or "vector" (as previously

noted by Buckminster Fuller) upon which the window is nested inside. Another way this may be described is through the words of Kenneth Boulding in his book The Image, noting how "...we are dealing here with a world of mirrors", in reference to how each individual is continually subject to the reactions of others. Taking in the world from the perspective of self and others from the vantage point of direct visual experience allows us to systematically dissolve cultural boundaries and generate a unifying vision to see one another as human, all peering through windows of experiences for which we paint upon and chatter underneath; before layering back on the social, cultural and economic differences that too often divide us.

Empathy in this manner from the inside-out better exposes the pang of inequality as the reactions that many metabolically regenerative experience windows collect on a daily basis from this [social] "world of mirrors" of other experience windows involves being glanced at or interacted with differently, or even hostilely, while simply attempting to maintain the stability of a daily routine. Furthermore, incorporating into this terminology how the visual fields of the human species are regenerated by metabolism tethers our experiences to our physical surroundings due to the dependence of metabolite concentration on food and water, and thus to some extent on socioeconomic resources. Each metabolically regenerative experience window is therefore a system that through each moment in time is subject to a

slightly different nutrient flow, and thus each of these windows through time is 'riding' upon its own unique, 'four-dimensional' metabolic 'track' (or stream). Macro- and micronutrient availability allowing for the individually-unique customization and optimization of metabolic tracks is often highly dependent on financial resources, which implies that the unfolding of thought is not entirely independent of socioeconomic status, in terms of examples such as nutrient access as well as internal or externalized reactions to reactions. This might include negative emotion and more frequently spiked cortisol concentrations derived from how one may be automatically perceived based on something such as race. This also implies the obvious: that genius may be suppressed by systemic inequality, racism, and poverty, and thus rising above labels and more wisely distributing opportunities leading to health and wellness are surely to vitalize the engine of the creative human 'meta-mind'; the beautiful 'Monet' or collage and the billions of experience windows which pixelate its collective bloom.

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[1] Boulding, Kenneth Ewart. The image: Knowledge in life and society. Vol. 47. University of Michigan press, pg 72, 1956.

XIV. BREAKING FREE

"Life is but a daily oscillation between revolt and submission." Henri Frederic Amiel

Humanity is a network of nonsimultaneous 'metabolic jugglers', all generating and regenerating and sculpting different mental images. Thus upon returning to the abstraction of every human mind represented as a matrix of billions of metabolically regenerative experience windows, each balancing cycles of energy and generating chains of dreams and goals through time, we may now add another abstraction layer: the fade to grey. Everyone is continually 'stirring up' or 'spinning a wheel' of internal visuals, but the degree of conscious novelty of both the images painted by the mind or those externally captured which compose the background canvas, as well as all other forms of sensory stimuli, may be thought of as rankable on a gradiental grey-to-color scale, where faded grey imagery within the 'circular' experience window represents stimuli for which the mind has become accustomed to and no longer allocates notable attention, and more strikingly colorful imagery represents novelty that captures our undivided attention. At any one moment in time, the entirety of humanity ranks somewhere on this color scale concerning whether they are or are not collecting any experiences which capture the attention of consciousness. Every one of us, out of the billions of minds involved, are each carving out an experiential trail of moments in specific

locations in space and time for which strike us as novel and seize our attention and remodel the imagery shaping our perspectives of reality (broadly stated), and it may be wise to follow the experiences, like a trail of breadcrumbs, composing the moments most deeply punctuated with love and joy. For each and every person, the stimuli will differ, but upon laying out these moments into the 'book of you', patterns may be captured which offer clues leading us in the direction of collecting more of such experiences.

Awareness of the 'fade in and out of grey' for which occurs within the self and within the minds of others, may also provide benefits for the creative process. For the mind itself is in part composed of the tools of creation for which generate its canvas and brush, and the creative process is in some ways an uphill battle against the processes for which automatically engrain and bury repetitions of experience under conscious awareness. Yet in the same way that taking a closer look at the nature around us may lead us to discover hidden beauty where unexpected, whether vast landscapes or small pockets of greenery, in this same manner are we taking a second look at the phenomenon of boredom, which is perhaps not as boring as its reputation holds to!

To break free of this feeling of stagnation to generate novel imagery, whether it be entirely exploratory, or for a specific learning or problem solving goal, it is key to note a reminder that the mind is continuously streaming in chains of both pictures and language, where focus may be allocated to both or one more than the other; or, our external background environment may receive more

attention. Typically, but not always, the creative process may be most effective when attempting to adjust the flow of language downwards, while upwardly adjusting the flow of mental imagery, and the resulting focus upon it. In other words, try 'corking up' internal chatting and 'uncorking' streams of imagery. As a reminder, it is helpful to offer a reminder that the mind is extraordinarily capable of simulating both imagery without light input and language or sound without sound input. When a new visual pattern unfolding process arises in the mind for which is undesired by the individual for whatever reason, attempt to dampen the irrelevancy or visually 'collapse' it, by focusing on the form's edges and pushing its system boundaries inwards to decrease its size in the visual field until the previous, desired pattern of thought may take its place. Think again of this as a competitive blooming process of patterns for which heightened awareness selects the most desirable or relevant forms.

Generating more striking mental imagery is ultimately the outcome of practice, which includes the adjustment of external conditions, as well as the process of projecting patterns of form and simulated color into our window of experience. In addition to balancing energy and metabolism, technology offers the phenomenal advantage of streaming an essentially infinite variety of music for which novel visuals may be constructed upon, so even when it is not practical to alter immediate surroundings upon the feeling of sensorially 'fading to grey', modern technologies grant us an on-demand burst of sensory novelty to jolt the imagination. The may come in extremely handy for breaking

free of the cobwebs spun by routine and repetitive stimuli.

Sometimes one may not know the topic of thinking for which to pattern imagery, in which case simply enjoy the ride! At other times, it may be valuable to prime the mind with relevant imagery before attempting to spin the wheels of creativity with novel music, scenic walks, and so on. This results in thought chains in the metabolically regenerative experience window, or mind tunnel (through time), that begins with what may already be seen (known) of relevant systems. With these building blocks in place, attempt to flood the mind with novelty and beauty while balancing energy. With practice and *focus*, it is possible to harness the chaotic and transient forms which flicker in and out of consciousness and sequentially mold them into complex visual systems of interest. Here, although repetitive, it may also serve as a helpful reminder to attempt to couple separate intellectual chains of thought during the process of intaking novel stimuli to generate upon it novel visual patterns in the mind. Remember that the metabolically regenerative experience window, the mind, the brain, and so on, all act as the focal nexus between all knowledge systems you may imagine, so with this in mind, practice swapping perspectives and adding new details to prior systems of knowledge with this as the ultimate linkage point, or *interface*, between them. Remember to try and hold mental imagery in place, zoom in, zoom out, and so on, adding new details until new layers of the system emerge for which one was not previously aware. After painting new forms into the experience window's canvas, one will eventually come to tire out, at which time it may be helpful

to start recoupling the visual photo reel with strings of language, in order to record linguistic fragments and details representing this newfound knowledge, as it can otherwise be all too easy to lose! Additionally, although visual systems thinking may be applied to glean insight from essentially anything imaginable, focusing the practice of internal visualization and creative image generation *on itself* and on the self to heighten awareness is surely one of the most intriguing and useful examples.

XV. A STREAM OF ORDER

"An organism's astonishing gift of concentrating a 'stream of order' on itself and thus escaping the decay into atomic chaos of 'drinking orderliness' from a suitable environment seems to be connected with the presence of the 'aperiodic solids', the chromosome molecules, which doubtless represent the highest degree of well-ordered atomic association we know of much higher than the ordinary periodic crystal in virtue of the individual role every atom and every radical is playing here.

To put it briefly, we witness the event that existing order displays the power of maintaining itself and of producing orderly events."[1]

As the lag time between the generation of internal imagery in the mind to the direct or semi-direct translation of that imagery into the the world decreases, and as we seemingly plunge out of nature and into history and become evermore reliant on our externalized creations to metabolically regenerate ourselves, it becomes increasingly easy to overlook key commonalities within our own form. We share with a great variety of organisms one of the most successful biological designs; from earthworms to elephants, it is that of a simple tubelike structure for which we import resources and export waste. And from the hidden canals for which we uptake nutrients lays the basis for our extraordinary ability to temporarily defy known physics, combat entropy and 'stack' order upon itself. The biological

architecture responsible is composed of a remarkable layering of system-scales for which we shall diverge to zoom-in upon here as a visualization exercise.

Erwin Schrödinger once took note that "An organism's astonishing gift of concentrating a 'stream of order' on itself... ...of 'drinking orderliness' from a suitable environment seems to be connected with the presence of the 'aperiodic solids'"[2] [DNA]. The 'channel' of this "stream of order" can be viewed, collectively (the presence of many entangled 'aperiodic solids' or DNA molecules) in the macro-sense and in higher organisms, as essentially starting with the entirety of the mouth, esophagus, stomach and gut, where the former three focus almost entirely on breaking down food without absorption. It is instead the intestinal components of this tubular system that may be thought of as the true nexus of intestinally- perpendicular nutrient uptake and of form regeneration initiation in complex multicellular organisms. It is thus this metabolic stream of order which permits us to convert food into self and maintain our form through time. A complex mix of our own cells as well as massive populations of bacteria line our intestines to create a high surface area 'mat' of highly specialized genomes, both large (ours) and small (bacteria), which serve the purpose of essentially 'mining' partially dissolved chunks of food, which may be thought of as 'molecular conglomerates', for various energetic and structural components to regenerate their own form locally/cellularly, as well as your own form non-locally/systemically.

Although it may seem peculiar to suddenly switch from a more abstract perspective on the mind to that of the

intestines, it is partially the result of a great deal of work performed in the alien landscape of the intestines for which fuels the thoughts capable of understanding and visualizing them in the first place. And upon attempting a more systemic visualization, the world inside ourselves indeed becomes even more alien. Human intestines — the large intestine in particular — carry a great deal of microbial diversity, and although approximately 40 types of bacteria dominate these regions in terms of abundance, several hundred to 1,000 species can coexist overall.[3] These rapidly dividing bacterial genomes of great metabolic-pathway-generating variety are capable of enzymatically 'soaking up' a wide range of incoming nutrients on a situational basis, where their byproducts and leftovers diffuse into the surrounding ocean of eukaryotic microvilli. Although somewhat of a stretch, comparisons could be drawn of this landscape to that of our Earth's own oceans, where bacteria navigate between microvilli of similar size, resembling fields of sea anemones coating the tops and bottoms of a continuum of hills (villi). If a single bacterium, slowly, chemically responding to sensory data, maneuvering among these microvilli 'anemones' was magnified over 780 times from its original 2-micron length to be barely visible at ~2/3 of a millimeter, and if its intestinal surroundings were also magnified by similar proportions, then said microvilli 'anemones' would also average a similar 2/3 - 1 millimeter in length, while the larger 'hills' (villi) would stand at approximately 2.5 feet tall, and the diameter of the intestine itself (assuming a roughly 7 centimeter diameter large intestine) would come to be roughly 180 feet wide — or

close to the diameter of the circular portion of the Columbia University Business School library.

If we were to zoom in to one of the cells here, whether mammalian or that of a bacterium, we might start the visualization process by removing clutter; by removing all molecules from the cell except its DNA. DNA (Schrodinger's 'aperiodic crystal', for DNA was poorly understood at the time of his writings) may in some sense by thought of as relay centers between sensed environmental inputs and exported environmental outputs, e.g. proteins transcribed and translated from individual genes.

Each individual gene may then be thought of as a tiny geometric fragment of the genome (say, 0.02% or smaller). In an abstract sense, individual genes as geometric DNA fragments of individual genomes, as well as multiple genomes across multiple cells, seem to become further entangled with and modified by one another over time through continuous influxes of metabolites. A radically simplified analogy of this environmentally-influenced genetic relay entanglement and 'smoothing out' process might be that it is not entirely unlike the continuous remolding and rearranging of soil particles and pebbles to most energetically suit flows of water in a stream or river. Such streams and rivers consist of continuously fluctuating, but macro-statistically repetitive, volumes continuously changing, but macro-statistically repetitive, concentrations of water molecules, as would concentrations of metabolites like enzyme substrates and other structural/energetic components be continuously in flux but repeat stabilized

patterns over time that could be 'captured' and imprinted into DNA. Furthermore, it may be logically derived that continuously imprinting environmental responses in the form of specific chemical reactions into DNA decreases the possibility magnitude and number of potential states of the localized chemical system, while increasing the number of orderly and *specific* responses to external stimuli, thus helping the DNA molecule and thus the genome survive above an orderly threshold that would otherwise entropically dissolve it. Indeed, it has been argued that "the crucial difference between life and chemistry is the constraint that DNA imposes on the range of chemical reactions that tend to occur in an organism".[4] When certain molecules such as various metabolites come within a particular range of a genome, electrons on said molecules are pulled down a 'channel' of reactions that often pull apart the entire molecule in the process, distributing some of its electrons further through more branching 'canals' of reactions across the cell. These canals are, on the one hand, formed on their 'inside' (e.g. the 'water' in the canal) by oscillations in inter-molecular forces that continuously reform and 'pulse' branching reaction-trees to life, which web through the cell. Such oscillating inter-molecular forces based on reactant availability allow a cell to maintain its form to hold its structure together. It is therefore the regeneration of these forces, or 'circuits', which in contrast to modern engineering, construct and maintain the form of the circuitboard (the cell, collectively).

This temporary pivot from mind to DNA is to provide an example to systemically work up from in scale in order

to practice visual systems thinking for understanding the self. As a visualization tool for this, the work of scientists/artists such as David Goodsell is highly recommended. If we start with a simple system containing DNA, such as the DNA found inside a single bacterium, such a genome might resemble something like an unwoven but highly tangled ball of molecular yarn composed of two strings woven together in a helical form. The long, double-stranded thread is connected at both ends to create a closed loop. If the entire length of this tangled molecular yarn was taken to be the full bacterial genome, then taking each of its approximately 4,000-5,000 of genes (an approximation for the common E. Coli) into account would involve functionally dividing the thread into tiny pieces, each only about 0.02% of the length of the whole, as previously mentioned. These pieces genes are typically not separated from the primary structure (with some exceptions) and everywhere around this long, circular, tangled molecular thread, tiny little segments (genes) are constantly being opened and closed (zipped and unzipped) in response to external signals. Each time a tiny segment of the molecular "yarn"/genome is unzipped, a structural representation of this tiny segment (mRNA) is threaded together and released by a separate molecule (mRNA polymerase), and then downstream a second structural representation (a protein) of the first released tiny segment (mRNA) is threaded together by a massive ribosome and subsequently self-assembles into a 3D functional unit, respectively representing transcription (DNA-mRNA) and translation (mRNA to proteins). mRNA polymerase

molecules and ribosomes share the commonality of each act very roughly like electrochemical siphons, respectively sucking in nearby nucleic acids and transfer RNAs to string together mRNA strands or amino acids (which self assemble into proteins).

The capability of a long thread of the DNA molecule to constantly release tiny, fragmented representations of its geometry (0.02% here, 0.015% there, 0.02% there, many times and in many locations at once) as packaged responses to environmental stimuli makes the molecule so astounding. Its structure essentially walks through time by flipping out and surrounding itself with its own structural fragments genes bundled up into proteins. With the help of the lipid membrane that forms the overall structural boundary of a cell its DNA is able to cocoon itself in a complex interlocking web of its own functional components. Complexity is increased further as many functions inside a the cell are carried out by molecules of which are not proteins but are produced by the proteins themselves such as the signaling molecule AHL in bacteria. In other words, many molecules performing important functions for the cell are not fragmented structural descendants of DNA itself, but are produced by said fragments. DNA is therefore capable of not only task distribution via acting as the substrate for catalyzing the release of functionally-partitioned segments of its structure, but can further use these segments to externalize the juggling of additional structures/functions. It is easy to see how beautifully complex the strings of DNA are as we visually zoom-in on a single cell, and upon zooming out to

the scale of tissues, organs, and to the entire human form, this genomic complexity is only multiplied by the trillion-fold. Indeed, "nature sees only a gene swarm…" Terence McKenna. And remember, as previously discussed, this is only a trivially tiny representation of the *spatial* (and partially temporal) image of the body alone, upon which the mind rests atop of and lies nested inside.

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[1] Schrödinger, Erwin. What is life?: With mind and matter and autobiographical sketches. Cambridge University Press, p. 132, 1992.

[2] Schrödinger, Erwin. What is life?: With mind and matter and autobiographical sketches. Cambridge University Press, p. 77, 1992.

[3] Donaldson, Gregory P., S. Melanie Lee, and Sarkis K. Mazmanian. "Gut biogeography of the bacterial microbiota." Nature Reviews Microbiology 14.1 (2016): 20-32.

[4] Polanyi, Michael. "Life's Irreducible Structure: Live mechanisms and information in DNA are boundary conditions with a sequence of boundaries above them." Science 160.3834 (1968): 1308-1312.

XVI. THE BED OF ROSES

"The acts of propagation by which a series of genetically connected individuals proceed one from another are not really an interruption but only a 'constriction' of both bodily and spiritual life. Thus we can speak of the identity of an individual's consciousness with that of one of his ancestors in much the same sense as we can of the identity of my consciousness before and after a deep sleep."[1]

"Being alive does not merely consist in being composed in a particular way. It consists in changing in a particular way."[2]

These examples serve as powerful visual abstractions, in that the human body may be thought of as the arrangement of a continuum of geometric constraints through time upon the particular changes we continuously undergo while living, including our aforementioned spiritual life and the diversity of form flowered into existence by the mind.

Tulips and dandelions serve as an interesting, abstract example analogy of lifeforms for which bloom during the day and close at night. In a similar manner, upon waking up in the morning after a deep sleep, humans open the eyes and flood the window of experience, through the retinas our miniature multi-wavelength-collecting satellite disks

with light; and thus both biological systems begin to 'flower' at dawn and interact with electromagnetic energy. Each of these systems is additionally 'wired' to downstream root-like structures — whether actual roots or the axons of the nervous system — for which metabolite/molecular exchange may occur, with the primary difference being that although both flowers and eyes collect electromagnetic energy, one process converts it to chemical energy while the other converts it into signaling patterns for which improve our ability to gather metabolic energy elsewhere. With this analogy, the body may indeed be thought of the nutrient-bed for which both fuels and geometrically 'constricts' our spiritual life, as noted by Schrödinger. The physiological systems of the body may therefore be thought of a constraint for which encapsulates the metabolically regenerative experience window — the vector for which carries our experiences and imposes boundaries of form for which the stable repetition of processes may flow through. As noted by von Bertalanffy, "the stream of life is maintained only in the continuous flow of matter through all groups of organisms."[3] And thus the boundaries of our bodies comprise the nutrient bed and physiological root system for which the mind, acting as the flowering 'bud' of our being, collects cyclic waves of metabolites. von Bertalanffy further specified the three primary philological integrating systems of the body to be as follows:

1. fluids for nutrients & O2

2. Hormones; chemical function regulation
3. Nervous system; electrochemical regulation/ integration and responses to external stimuli

And through the integration and interactions of these control systems which constrain the possible routes our biochemistry can take, "because constraints can propagate through physical interaction",[4] we stay within the physical thresholds permissible to life; we retain our regenerative order stacking capabilities and significantly stall the fall into entropic equilibrium.

The human mind, from the perspective of direct experience and when taking into account how energy may often peak at a point after a meal (depending on diet), may be thought in a sense to be continually flushed-through by waves of metabolites for which can more rapidly spin the 'photo reel' of visual thoughts; for which energize the mind's paintbrush to permit a more rapid formation of imagery upon its background canvas our metabolically regenerative window of experience.

As with any imaginable system for which the mind generates an image of, these metabolic waves have a structure for which it is possible to impose boundaries upon to isolate the system in space and time. Brain vasculature is comprised of a fractal branching network which shares the general form of most vegetative root systems, and within this vascular network flows metabolites

varying in concentration in both space and time. Metabolic products periodically cycled through the cerebrovascular system to invigorate the creative tools of the mind and regenerate our experience therefore, in an abstract sense and assuming one eats meals at a similar time each day, may be thought to have a type of 'waveform' pattern in the sense that their concentrations rise and fall but stay within a certain threshold, with the upper limits of such resulting in vomiting from excess food, and the lower limits resulting in starvation. Thus again in an abstracted sense, the mind may be thought to ride atop a branching, fractal metabolic 'track' or stream through time a metabolic import-outport track stirred by periodic waves of increased metabolite concentrations, and learning how to 'ride' these waves is a key component of balancing one's energy. For example, heightened awareness of the fact that food and drink result in temporally delayed (by varying degrees) metabolic waves pumped through the systems which physiologically constrict the energetic flows through the mind, may result in better couplings of peak energy and creativity to open instances of time, of which is the most vital resource to us all.

Smoothing out the metabolic regeneration of self and thus of direct experiences is perhaps one of the most influential, partially-hidden and often overlooked facets of society. Lack of awareness of the delayed feedback loops of metabolism and a failure to balance energy is a direct

impediment to deeply ingrained survival instincts heavily coupled to emotions for which we may neglect out of the barrage of distractions experienced in the modern world. In looking at the world from the perspective of direct experience and the metabolic flows which help tether direct experience to physical reality (in addition to other sensory data), being human has in part consisted of functioning as a metabolically regenerative experience vector and window honed to collect experiences that occur in relation to maximized stability, reliability, optimization and customization of metabolic regeneration. And since our mind has grown quite accustomed to the intake and simulation of complex sensory data, it becomes easy to forget that all of these mechanisms are continually regenerated and reconstructed by metabolism; flows of nutrients even regenerate the cellular pixel-grid of the retinas for which permits us to stream in form and color outside of ourselves, and flows of nutrients grant our minds the strength of focus necessary for splashing new imagery onto the mind's canvas. Of course, metabolic regeneration is further stacked upon a complex layering of mental abstractions as we navigate the social world. Still, it serves as an intriguing reminder that the center of our metabolically regenerative experience window serves as a searchlight for novelty, and encountering novel experiences which enhance our metabolic regeneration (health and wellness practices), typically results in the behavioral 'Pez

dispenser' of the mind pursuing more of these experiences as if honing towards an internal field of values coupled to the improvement of sustaining oneself. This is positive feedback, which may be heightened in the social world by assisting with the metabolic regeneration of others, since this often results in even more beneficial feedback.

In summary, the physiological systems may be thought to partially constrict the mind, and the flows of food and water from the environment thus constrict the physiological systems. This also means that to an extent, as mentioned earlier, environment and resources also impose constraints on the mind.

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[1] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 47, 1964.

[2] Deacon, Terrence W. Incomplete nature: How mind emerged from matter. WW Norton & Company, pg 175, 2011. Kindle Edition.

[3] Von Bertalanffy, Ludwig. "Problems of life; an evaluation of modern biological thought." (1952).

[4] Deacon, Terrence W. Incomplete nature: How mind emerged from matter. WW Norton & Company, pg 481, 2011. Kindle Edition.

XVII. POVERTY

"Constraints are what is not there but could have been, irrespective of whether this is registered by any act of observation."[1]

Thus far, we have attempted to systemically break down differences of race, culture, nationality, and so on, by constructing abstractions applicable to the entirety of humanity — that of a 'circular' window of experience, clearest in the center and blurred towards the periphery like a Monet, for which composes a canvas the mind may paint upon, and of which is ultimately, yet more subtly regenerated by metabolism and stirred to life through the sensory data we collect as we bloom into waking consciousness each day. It is now important to reassemble some of the differences among and between humanity as experienced through the 'shared' abstraction of a metabolically regenerative experience window, to serve as a methodology of understanding the complex gradients of privilege throughout the world via a more direct and poignantly relatable form of empathy.

What is it like to grow up in total poverty? Let us take the reader's 'circular' window of experience, wipe it clean of all prior experiences, almost like clearing all temporal dimensions of an Etch A Sketch, and relocate it into an alternate timeline for which the imagery filtered into the window is that of a slum, or ghetto. What happens when the imagery of which filters into the mind and continually

reconstructs the background for which the mind paints upon is tattered, unclean, unkempt, and unhealthy? What happens when the input of this external imagery constantly elicits internal imagery representative of and coupled to abstractions and emotions pertaining to hunger, or crime, or war? And on top of this inescapable external-to-internal coupling of hostile or unpleasant imagery and emotion, what if such a mind is riding upon a highly unstable metabolic track for which fluctuates daily and may more often push upon the biochemical buttons of starvation?

Now, what happens when the mind of those mentioned above, sees a television or other screen for the first time for which beams in sensory data derivative of human worlds so wealthy they seem almost alien? The reaction may in part be influenced by how those wealthy 'alien' worlds are interacting with impoverished communities, as well as whether or not any individuals from said impoverished communities also exist in the privileged ones, and so on.

Now in moving towards the other extreme, what happens when the visuals for which stream into a mind are from birth, clean, organized, and beautiful, and are coupled to internal imagery and emotions of continuously opened possibilities, love, and acceptance? And let us further say that the "small mouth noises" (words as worded by Terrance McKenna) collected daily by said persons further positively reinforce these positive image-emotion couplings? On top of this, those in privileged positions in society — any society — also rarely if ever have their minds tugged upon and thrown awry by unstable metabolic streams, by hunger.

The next time your internal cycles of narrative chatter state that you are hungry, ask, are you truly? Thus, cycles of poverty and crime may in some sense act as mental quicksand that continuously cycles the mind 'downward' and of which can be extraordinarily challenging to crawl out of, and so tremendous respect should be shown for those who have the resilience to escape. Many individuals for who have had significant impacts on humanity have had the datum of low-resource lifestyles splashed into their experience windows for considerable periods of time, for reading about hardship and the myriad hurdles involved in climbing out is certainly not a substitute for direct experience. On the other hand in something of a paradox, many individuals find bliss in impoverished conditions, including those who have achieved great wealth and later shed this by finding beauty in the simplicity of low-resource lifestyles, and find beauty in the connection and resilience among impoverished communities. If anything, this seems to be a pattern among individuals and populations and civilizations, further amplified by trends such as the tiny house and van life movements that of first honing towards and then away from material wealth, and then simplifying the conditions necessary for stable and sustainable metabolic regeneration in order to maximize *freedom*.

Perhaps the processes of living in low resource conditions, depending on the perspective and on the circumstances, may then either be more like suffocating under quicksand, or more like the unshackling of chains; a source of great misery or empowerment. Either way, it is

more important than ever for anyone with the privilege of having the available stretch of time to search for and read this book, to more directly emphasize with the experiences of those who are struggling and who are suffering, because, to quote the timely classic 'How to Win Friends and Influence People', "…they are just what we would be under similar circumstances."[2] This brings us back to our introductory quote: "constraints are what is not there but could have been, irrespective of whether this is registered by any act of observation." It is the author's hope that such reading serves as an act of observation which catalyzes the realization that impoverished communities are a nexus of unrealized possibilities, of which are constricted into invisibility via the constraints of crime and poor health. It is thus important to not become too engrossed and entangled in cultural boundaries so as to be blinded by the fact that we are all paintbrush and canvas, all in cycles of dormancy and bloom.

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[1] Deacon, Terrence W. Incomplete nature: How mind emerged from matter. WW Norton & Company, pg 192, 2011. Kindle Edition.
[2] Carnegie, Dale. How to Win Friends and Influence People (Kindle Location 590). GENERAL PRESS. Kindle Edition.

XVIII. PUPPETS ON STRINGS

"The circuitry seems to be there, even if the current is not always on."[1]

Thus far we have brought forth analogies pertaining to the mind, internal imagery and direct visual experience of which has included cycles of growth and flowering and rest; paintbrush and canvas; retinal 'satellite dishes'; and creative visualization as the practice of an instrument such as the cello. The latter will be briefly expanded upon as the art form of playing an 'electrochemical string instrument'. In first returning to the retinal 'satellite dishes' in the back of our eyes constantly receiving and processing electromagnetic information during our waking periods, although this is common knowledge to many, it is useful to offer a reminder that each retinal satellite dish is connected to a slew of axonal wires which join together at a specific point (our blind spots in each eye), and subsequently run into our brain. The axonal wires which leave the retinal satellite dishes of our eyes look quite similar to a rope of which consists of a great number of strings wrapped together. To better notice this, we would simply need to unwrap the axonal wires like unwinding a rope to see the millions of threads streaming sensory data from eye to brain, and indeed, the retina is akin to the "outpost of the brain".[2] Although very different

physical processes are involved, information is sent from one end of a set of strings to the other in both instances of playing the cello and of looking at something. A string is plucked and transmits vibrational data, or the retinal satellite dishes collect visual data and stream it through retinal axons. And even while playing the cello, a variety of neural circuitry is activated for which transmits electrochemical information from one neuron cell body, through axonal string, to another cell body in rapid succession. Thus any activity we perform, or anything experience for that matter, whether perceived as external or internal with everything ultimately internalized plays a different series of 'notes' on the axonal string instrument of our brains. Therefore we may also conclude that the process of intentionally generating, focusing upon and growing dynamic, detailed, beautiful and insightful patterns of mental imagery is likewise a process of playing the electrochemical string instrument of the mind, and hints that practice makes perfect.

We can also easily extend this electrochemical string instrument abstraction to the entire body, for the mind indeed wields something of a 'bidirectional pulley' upon our limbs; we puppeteer ourselves through a series of wires. Yet one of the most significant influencers of how this electromagnetic string instrument puppeteers itself is that of the data collected by the eyes, and thus by the 'satellite dishes' in the back of them. As yet another example of

increasing the resolution of the visual model of ourselves, return to our 'circular' metabolically regenerative experience window, of which is composed by the partial overlap of sensory data collected by two partially overlapping satellite dish retinas. For one, it is interesting to note that tracing the window through which we experience the world through time, as a series of snapshots, is partially as if we were tracing the path of our 'satellite dish' retinas though time. This suddenly becomes far less abstract, as you could theoretically quantify an approximation of the volume occupied by the trail traced by both retinas through time to map where our experience windows have been, and what environmental sensory patterns have been channeled downstream through their network of cords. And as mentioned above, if we were to unwind the axonal strings which carry data from eye to the rest of the brain, we would see differing patterns of signals sent from neural cells in the retina, downstream into the brain, every time we even slightly adjusted our gaze to stream in slightly different forms and colors. We can thus abstractly imagine this continuous neural firing corresponding to the gathering of sensory data as a series of 'electrochemical clicks' traveling out of the eyes along axonal strings and into the brain, patterns of which are distinct for the slightest discernible differences of our vision. Therefore, every image for which composes the 'background canvas' upon which the mind may paint upon; everything you see, has a distinct pattern of

corresponding electrochemical 'clicks' which are sent along the axonal strings leaving the eyes. And although there is still much to be understood about the underlying science of these processes, it may also be reasonably assumed that for each novel image which is collected by the eyes and yields a new background canvas for our visions — each new place we visit and sight we see, may be thought to elicit an electrochemical burst of novel clicks, where the intensity of such gradually fades after the imagery has been experienced for a prolonged period of time, or after a significant number of repetitions. In other words, sensorial novelty stirs bursts of novel electrochemical clicking; bursts of new notes along the string instrument of the mind, for which gradually become habitual and in the process of such, sink under conscious awareness. And thus we return to our battle against the fade to grey.

We may also flip the coin of our perspective, for this process can be viewed as following a 'mind tunnel' down a stream of experiences for which we continuously hone towards collecting novel 'notes' for our electrochemical string instrument. This also helps to demonstrate some of the appeal of technology and social media, where the continuous act of scrolling through the experiences and thoughts of others elicits a steady and *reliable* stream of 'electrochemical clicks' — new notes — although the powerful bursts of novelty and beauty which may move us

to tears or radically remodel our internal imagery are more seldom encountered, and are more seldom *expected*.

If we return to the perspective of direct experience, of our 'circular' metabolically regenerative experience window for which we take in the world, and run this through time to create a 'mind tunnel', and then step outside ourselves as previously mentioned and glimpse our mind tunnels from a birds eye view as we go about our daily routines, we would notice that the mind tunnel is itself the track upon which our body 'rides' on; the mind tunnel is itself the stream we row down. And the direction the stream carries our body is heavily influenced by the type of 'notes' the creative instrument of the mind collects and plays back to others; the type of notes it values learning. Therefore, within the mind tunnel will be patterns of sensory data and experiences patterns of 'notes' or novel bursts of 'electrochemical clicks' for which propels the directions and motions of the body through time, creating, as earlier mentioned, a trail of novelty and value and feedback, a 'trail of becoming', within the greater mind tunnel. Additionally, this trail is continuously serenaded or barraged with notes we have already played and notes we wish to play. Some experiences shape us and direct us much more than others, so taking a step back 'outside of the self' (although still simulated or painted onto the window of experience), may help one determine which notes to pursue! And from this, we also notice that thinking about which 'notes', which

patterns of neural activity along the electrochemical string instruments for which composes the orchestra of the mind we find most beautifully striking, may also be thought of as a patterned dance of electrons we collectively choreograph through time that hones towards a certain type of performance an artistic demonstration to self and others that forms "…a small but integrating part of the striving of the species towards higher and ever higher perfection."[3]

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[1] Thomas, Lewis. The lives of a cell: Notes of a biology watcher. Penguin, pg 8, 1978.

[2] Roska, Botond, and Jose-Alain Sahel. "Restoring vision." Nature 557.7705 (2018): 359.

[3] Schrödinger, Erwin. What is life?: With mind and matter and autobiographical sketches. Cambridge University Press, p. 107, 1992.

XIX. COSMIC FISHING

"RBF [Richard Buckminster Fuller] would pause to take stock, to review tactics and strategies, and reconfirm objectives. Self discipline akin to a navigator taking fixes on charts in river piloting. Try to haul in world-netted shoals of cosmic fish. "Sonny handles the ship, opens the holds, and heads our catch for the commonwealth harbors of humanity, while my task is to cast out the net of prescient apprehension in discrete directions in the omnidirectional ocean of Universe to be hauled in only upon unpremeditated observational embracements of ever-more-stabilely-generalized systems of ever greater and more incisive comprehension with which we may classify and sort our cosmic-fish catch of ever multiplying Universe's special case experiences."[1]

The curious thing in thinking about thinking is that even though you may have an approximate idea of the 'type of fish' you wish to catch, you will never know the precise details of your catch until the event occurs, due to the nature of adding to one's internal knowledge structure. Still, the type of fish thoughts you are most likely to catch depends on a variety of external variables, such as the 'environment' of the stream, how healthy the 'water' is, as well as 'internal' variables, such as the 'bait' used e.g. music, ambiance, and so on. The very loose but intriguing comparison of the mind as a stream of sensory data and

individual, conscious thoughts as 'fish' or as the 'entities' within said stream, dynamic but localizable to specific locations in space and time, may be further extended with a layer of abstraction concerning the ravines and gullies through which the stream flows. Due to the partially cyclic nature of our experiences dominated by the day-night cycles of planetary motion, our experience window in part carves out its own ravines in real time through novel behaviors, and may also flow back through ravines of a similar structure if behaviors are repeated. This brings us back to how the repetition of like experiences become gradually buried under conscious awareness, and in a similar manner, navigating the 'boat' of the mind down streams of repetitive and like experiences entails that the surrounding 'habitual ravines' of our behaviors also becomes a routine experience, as well as the type of fish caught by charting a similar path over and over. This is not always a bad thing — such as in the instance of building upon a body of literature for which the general ideas have already been outlined. The trick is to maintain awareness and not get stuck in repetition, for repeated habits and behaviors, which feed back into repeated sequences of sensory data streamed into the 'circular' metabolically regenerative experience window, may also be thought of not unlike a kind of 'glue'. Repeated experiences in this manner, as they 'fossilize' and become habitual, act in some sense to 'glue' us down into a certain routine, so the act of

stepping back and observing oneself and one's experiences may help to determine if this solidification of habit is useful or if it should be modified, which refers us back to our section of using a combination of awareness through and with the creative tools of the mind to 'break out' from the fade to grey.

Another concept for which awareness may be useful is that of synergy, defined as "…the behavior of whole systems unpredicted by the behavior of their parts taken separately. Synergy means behavior of integral, aggregate, whole systems unpredicted by behaviors of any of their components or subassemblies of their components taken separately from the whole."[2] There is no reason why synergy may not be applied to our direct experiences, for different circumstance and variable may elicit and alter the resolution and dynamicity of the imagery our minds paint upon their background window of experience. The process of utilizing the mind's tools of creation for a deeper understanding of self, others and environment may, from one perspective, be thought of as a hunt for synergy, for the process of generating system behavior unpredictable by their parts taken separately (e.g. if looking at the spiking patterns of individual neurons) may be tightly aligned with the pursuit of experiences coupled to the balancing of energy for which 'birth' novelty; for which generate the complex integration of experiences and thought that flood us with awe, inspiration, and love "unpredicted by behaviors of any of their components or subassemblies of their components taken separately from the whole".

For the sake of better understanding and regulating the self, the wellspring of emotions for which may often be tightly coupled to internal imagery, as well as internal dialogue, and for which so often accompany the genesis of moments that punctuate our experiences with great breadth and depth of understanding, may also be abstracted by the paintbrush and canvas of the mind. For the swelling of emotion may also lead us down streams of experiences for which we deeply regret at a later point in time, as in the case of anger which may propagate exponentially into senseless violence. The fluctuation of emotion is easily abstracted into a palette of colors of constantly varying size and intensity, and through this awareness, the growth of detrimental emotions may be restrained. In the case of anger, it such was taken to be a 'red blob' growing in size and brightness in the visual field while correlated to the intensity of the feeling, one may then attempt to use this visual awareness to subdue the emotion before it takes control over the direction of how thoughts unfold. Simply visualize the edges of the 'red blob' corresponding to the feeling of anger, couple that feeling to a tightening of the muscles, and then release the hold while exhaling slowly to gradually attempt to push the boundaries of the 'blob' inwards until nothing is left but calm and understanding. For it is typically quite challenging to understand the perspective of another, even if they too are angry, if one's own mind is blurred from "seeing red again."

Again, there is no formula for when and how to best regulate emotions, how to best balance our energy and the

flow of metabolites our minds ride upon, which experiences to collect and which to reject, and which blooming growth patterns of internal imagery to nurture and water, and which to neglect. Even the habitual act of visual awareness of the self and the processes of the mind may stagnate and solidify and slide under conscious awareness if our perspective fails to shift. And thus a primary point, as reiterated through song and popular culture and literature and lore, is to enjoy the journey, enjoy the process, of ever greater awareness of self, others and environment, and through the trials and tribulations of being human, each will discover novel and exciting methods of channeling and acting upon such awareness of thought and experience. Each will be charting their own course, in a world of rampant machine intelligence where creative individuality coupled to humanities shall hopefully conserve our humanity. Each will thus chisel and add personality and character to the sculpture of each growth-pattern of mental form and imagery in an individual mind tunnel through time, in order to further chisel away at the collective sculpture of the "Universe" of billions of metabolically regenerative experiences windows. "In fact every individual life, indeed every day in the life of an individual, has to represent a part, however small, of this evolution, a chisel-stroke, however insignificant, on the eternally unfinished statue of our species. For the whole of its tremendous

evolution consists of myriads of such insignificant chisel-strokes."[3]

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[1] Applewhite, Edgar J. Cosmic fishing: An account of writing synergetics with Buckminster Fuller. Macmillan, 1977.

[2] Fuller, R. Buckminster. Synergetics: Explorations in the Geometry of Thinking, p. 59, 1975.

[3] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 47, 1964.

XX. A PIXEL IN THE WORLD-MIND

"There are no privileged frames of reference."[1]

The process of personal growth is not only a series of chisel strokes upon the eternally unfinished statue of our species; a series of transformations forward in the evolutionary dance of humanity, but also a series of chisel strokes upon the much smaller statue for which the foundation of the evolution of the individual is built upon. A statue built up from the combination and oscillation of the awareness of, and the use of, the mind's creative tools. For when we take our window of experience, geometrically abstract it into a two-dimensional circle blurred towards the periphery and functioning as the canvas upon which the mind paints or in this example, 'builds' or 'sculpts' upon, and then run this circular window through time to form many stacked circles, or a 'cylinder' or 'mind tunnel', then one may notice that within each circular snapshot we may also geometrically abstract the form of mental imagery for which we lay onto the circular background canvas of visual experience. And although the overall geometrically abstracted form through time of the imagery within the mind tunnel will be far more complex than a simplified cylinder, it will still have a form for which we may encapsulate and abstract as a system, as if stacking a house of cards or gradually carving out a detailed sculpture from the noise of the mind.

By shifting our own perspectives we thus not only avoid the fade to grey, but in the process carve a more detailed and interesting and beautiful sculpture of mental imagery. It may be helpful to imagine the creative tools of the mind, of which are in part the mind itself, as 'devices, mechanisms, organs, useful behaviours', as well as both blueprint and builder, dancer and choreographer, cellist and cello, and ultimately as the *practice* of a process of being. Schrödinger noted that:

"…the development of a particular device, mechanism, organ, useful behaviour, were produced by a long pearlstring of chance events, independent of each other, such as one is used to thinking of in terms of Darwin's original conception. Actually, I believe, only the first small start 'in a certain direction' has this structure. It produces itself circumstances which 'hammer the plastic material' by selection more and more systematically in the direction of the advantage gained at the outset. In metaphorical speech one might say: the species has found out in which direction its chance in life lies and pursues this path."[2]

Of course, we often take for granted that being human has the advantage of such a great many paths we may choose to pursue a great many paths for which our individual futures may lie as long as we do not become unintentionally trapped by the systems and routines we create. Likewise, other windows for which the human spirit collects experiences, near ours in space and/or time, or by

influence and attention, may be trapped in their own routines and may not have not realized that they have become locked into a fade-to-grey cycle — their behaviors fossilized into a series of habits making them unhappy or unfulfilled. It may make a tremendous impact on the life of others, whether at a point in time near or far from the present, to offer them a gentle nudge in a new direction; a gentle nudge down a new tunnel of experiences. For in many cases, the images generated in the mind 'pull us by the nose' towards future behavioral patterns and pockets of experiences, and with or without awareness of this, we "… will as tenderly be led by th' nose As asses are."[3]

Return now to the abstraction of the 'world mind' mentioned previously — a roughly 70 by 70 foot (or ~22 by 22 meter) two-dimensional square matrix of over 7 billion circular windows of experience, each only 1/4 of a millimeter in diameter. All of these spheres of awareness leaving behind them in time trails of thought and emotion, have blossomed into being very recently in the Earth's existence, for "man's mind is a recent product of our planet's side."[4] And from this awareness, one may increase the accuracy of this abstraction by wrapping this matrix of minds into a geographically localized sphere, but we will refrain from further details for simplicity. Somewhere on our abstracted, 2D square matrix of billions of metabolically regenerative experience windows lies *yours*, currently preoccupied by mental imagery or sound relevant to this writing. And with the advent of technology, geographic localization has become increasingly less important as to which experience windows in this matrix influence which

other experience windows in the matrix. Thus one strength of this matrix abstraction of billions of minds composing Buckminster Fuller's definition of the human "Universe" is that we may shift our location in the matrix according to which other human minds most frequently capture our attention — which other humans and their thoughts and experiences, whether verbal or visual, most often cyclicly reappear in your own experience window. In other words, where exactly your mind is localized in this matrix or grid abstraction of billions of others is completely *relative*, and you may thus cluster others around you for whom most frequently enter your thoughts, and thus for whom capture the greatest percentages of your attention. Additionally, the combination of thousands of years of written language now distributed across the digital nervous system of the 'meta mind' means that we may be heavily influenced by thought cycles of the deceased, and thus we may be influenced by the patterns of internal imagery of those for whom no longer constitute this living matrix, but once did, and thus we may be influenced by those at nearly any temporal point in the history of history. What happens to these windows of experience after death will be left to the reader to contemplate, but one should note that the act of reading in itself may grant new life, if we conclude we are at least partially are our stream of thoughts, of which are not independent systems from the thoughts of others.

"And now consider how totally the emergence of the spiritual personality is bound up with environmental influences which are the direct outcome of the spiritual

personalities of other members of the species, some living, some dead. And always remember that we scientists may and indeed must regard all these 'spiritual' influences as direct modifications of our individual soma (cerebral system) by the soma of other individuals, so that there is in principle no difference between these influences and those resulting from the succession of physical ancestors."[5]

This matrix of minds, whether as billions of '2D circles' at a single point in time, or many more billions of 'cylindrical mind tunnels' throughout all of human history, are too the space for which all history exists. We have blossomed onto the side of our planet and over time, through the continual growth of this matrix of experience windows, optimized our environment in the initially gradual and increasingly rapid process of translating the imagery generated in the mind — the imagery painted onto the mind's 'background canvas' — into our perceivable physical reality. Thus, the imagery of the mind, whether taking the form of architecture or recorded lyric and literature or other technological marvels, retains its presence and function in our background canvas of visual experience without us needing to continually bring it back into existence after it would normally dissipate away as a thought. We have continually turned the forms and patterns over time — the forms and patterns creating the imagery and the 'sculptures' of internal vision — which are seeded as directional flows of thought in the mind, into forms and

patterns that may be retained as conceptually 'outside' the mind, even though as mentioned earlier, we do not truly see outside of ourselves. In this sense, human history is indeed embedded inside the 'world mind' as abstracted previously

it is a product of our experience, and unfortunately, "'History' is that image of the past which filters through the mind of the historian, as light through a window. Sometimes the glass is dirty; too often it is distressingly opaque."[6] Sometimes the opaque nature of history is intentional, at other times intentionally forgotten, and at other times, sources are too scattered or inconclusive to paint a clear picture.

If we zoom back in to a single 'cylindrical' window of experience through time, then this is in some ways similar to the history and to the memory of the individual, and indeed, awareness of how our personal histories influence our behaviors may also help us when we feel as if undesired cycles of repeated experiences are gaining too much momentum as they solidify outside of our conscious awareness. When attempting to chart a new course for the self, it is often easiest to attempt to go back down familiar roads familiar tunnels of experience, or streams of experience one has already in part mapped than it is to steer in a new direction. The issue here, of course, is that exponentially many more possible paths of experience lay outside the tiny trail of sensory data a single life has thus far collected, so it can be helpful to avoid the unconscious

bias of wanting to 'stir back to life' old, unconscious, solidified behavioral relays that may result in one getting mired once again in the same habits.

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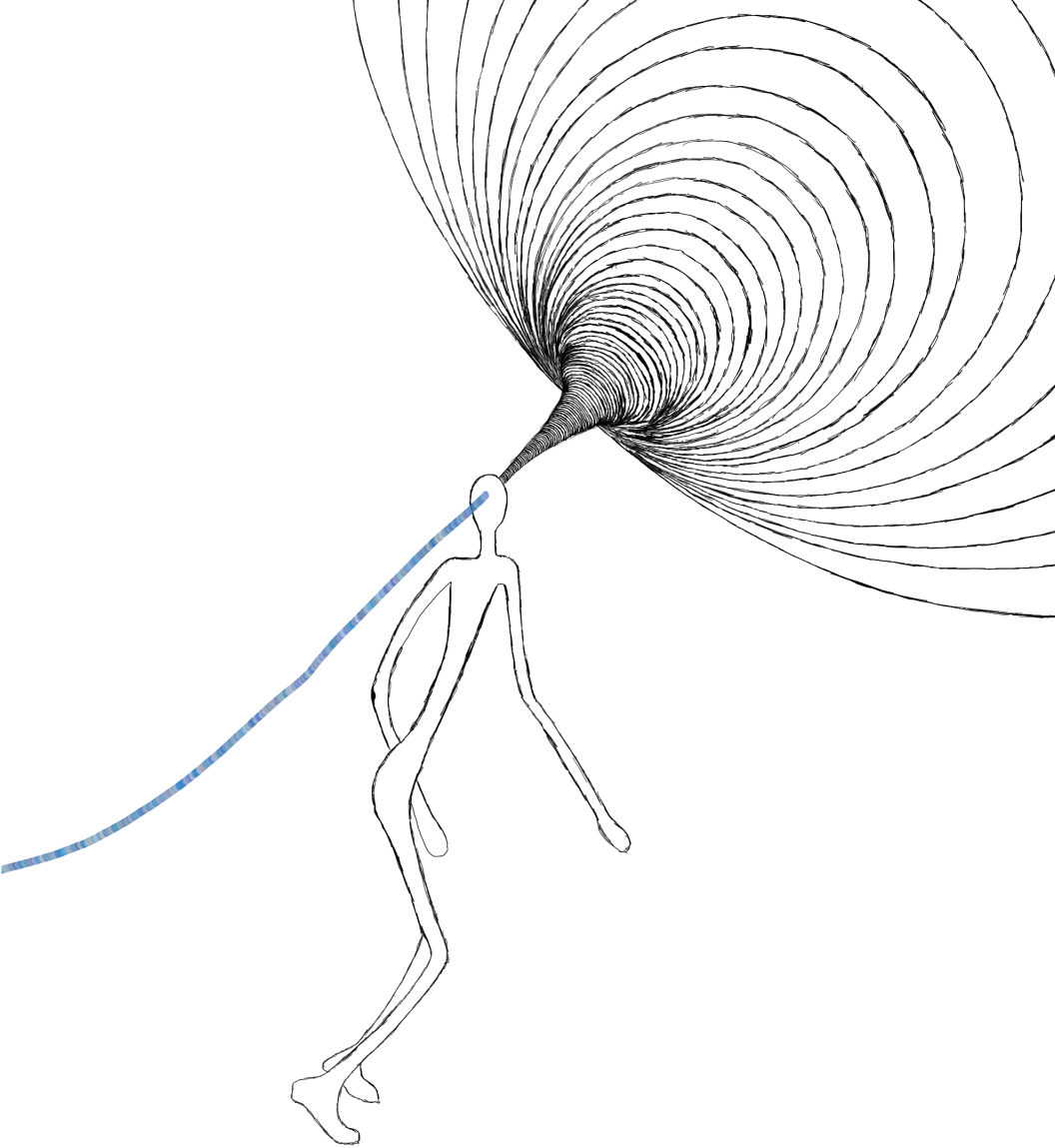
[1] Sagan, Carl. Contact: a novel. 1985.
[2] Schrödinger, Erwin. What is life?: With mind and matter and autobiographical sketches. Cambridge University Press, p. 107, 1992.
[3] Shakespeare, William. othello. Vol. 6. Classic Books Company, 2001.
[4] Sherrington, Charles. "Man on his nature." (1951).
[5] Schrödinger, Erwin. My view of the world. Cambridge University Press, pg 54, 1964.
[6] "Ralph H. Gabriel, American Historical Review 36, 786 (1931)."



XXI. POSSIBILITIES

"Art's task is to save the soul of mankind,

Anything less is a dithering while Rome burns.

If the artist, who has been self selected to venture into the other, if the artist cannot find the way, then the way cannot be found." Terence McKenna

Anytime a mind projects a goal 'into the future' by simulating it in the present, a particular series of behaviors or habits will be required to 'reach the goal'. By reaching the goal, this may typically be thought of as a visual simulation in the mind of relevant experiences pertaining to said goal for which the mind attempts a set of behaviors aimed at partially synchronizing the direct experiences of the present, to the simulated experiences pertaining to the goal. Therefore, the mind paints an image onto the background portion of the metabolically regenerative experience window, where the imagery painted by the mind functions as a 'carrot on a stick', creating a control system that over time and with enough effort, minimizes the difference between the mental imagery pertaining to the goal at time A, and the direct experiences pertaining to the achieved goal at a later time B. Both the mental imagery which generates the goal, and the steps towards its attainment as a relevant collection or 'data packet' of experiences at a later place in space and time, may often stay in varying degrees of fluctuation simply due

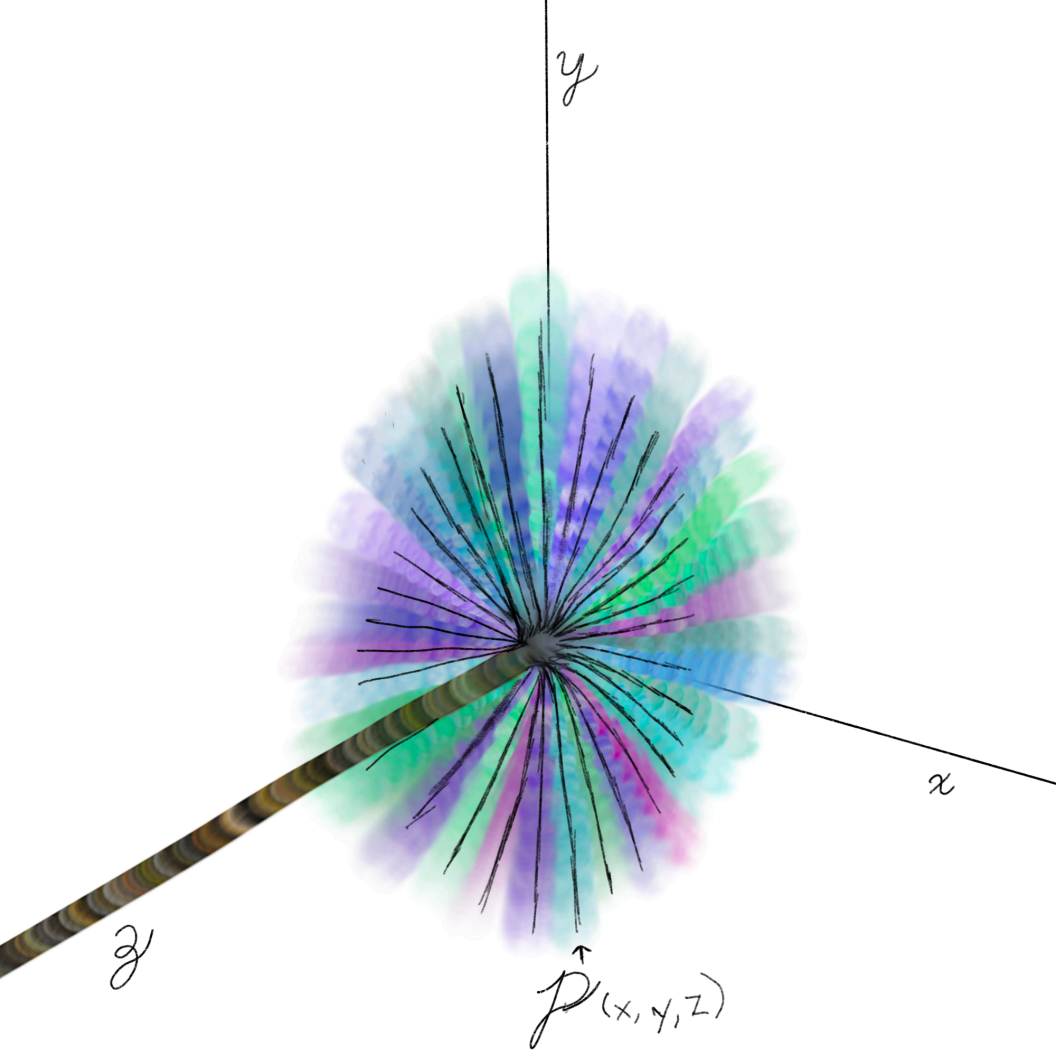
to how many possibilities can exist between the two time points exponentially increased by both time and complexity of goal.

Although many different possibilities, or streams of experience, or 'mind tunnel paths' may lead one to similar outcomes, or a similar goal achievement or similar 'pockets' of collected experiences at a point in time, it may thus be helpful to remember that not all routes are created equal. Some may be considerably more time consuming or fail to provide a steep enough gradient of learning and reward to capture the continued interest of the individual. It is thus important to take note of, and be mindful of, but not be overly disoriented by, how every human mind is a nexus of possibilities and thus a nexus of possible routes pertaining to streams of experiences and thoughts we may navigate down. Another linguistic abstraction of this, from the perspective of chronological chains of habits or behaviors or decisions, was noted in Frank Herbert's *Dune* as "consequence lines".

"Past, present and future merged into "...a trinocular vision that permitted him to see time become space. There was danger he felt, of overrunning himself, and he had to hold on to his awareness of the present, sending the blurred deflection of experience, the flowing moment, the continual solidification of that which is into the perpetual was. In grasping the present, he felt for the first time the massive steadiness of time's movement, everywhere complicated by shifting currents, waves, surges and counter surges, like surf against rocky cliffs. It gave him a new understanding of his

prescience, and he saw the source of blind time, the source of error in it, with an immediate sensation of fear. The prescience, he realized, was an illumination that incorporated the limits of what it revealed, at once a source of accuracy and meaningful error. A kind of Heisenberg Indeterminacy intervened. The expenditure of energy that revealed what he saw, changed what he saw. And what he saw was a time nexus in this cave, a boiling of possibilities focused here, where in the most minute action, the wink of an eye, a careless word, a misplaced grain of sand, moved a gigantic lever across the known universe. He saw violence with the outcomes subject to so many variables that the slightest movement created vast shiftings in the pattern. The vision made him want to freeze into immobility, but this too was action with its consequences. The countless consequences lines fanned out from within this cave, and on most of these consequence lines..."[1]

Although certain sets of experiences and interactions and decisions may hold more weight in terms of how radically they may alter our future experiences and interactions and decisions, technological advances allowing a great portion of the planet to learn almost anything anywhere means that the smallest nudge may result in a considerably altered trajectory. Likewise, taking a few extra chances, reading a few extra books or talking with a few extra strangers may not only open doors for which we were previously unable to imagine, but may also break one out of 'ground-in', unconscious behavioral habits and relays that one has failed to be aware of!



p = single possibility stream, or consequence line

Although it may well nigh be impossible to perfectly perceive streams of experiential possibilities or consequence lines exactly as they are to happen, a relatively simple abstraction may be painted onto the mind's background canvas by again starting with the approximately 'circular', metabolically regenerative window of experience and 'dragging it through time' to create a 'cylinder' or tube or tunnel-like shape. This cylinder or mind-tube/tunnel stretches out 'behind' the present into the past, and laying 'in front' of the present set of experiences in the future, 'fan out numerous consequence lines'. This may be roughly abstracted as future possibility streams composing a funnel or 'whirlpool' for which is siphoned onto and into one another onto the present, as our continued decisions and actions and thoughts collapse adjacent possibility streams into the single trail of sensory data we remember having experienced. Streams of experiences, or consequence lines furthest from the center of the whirlpool may be thought of as increasingly less likely to be experienced in the present moment, but with the correct pattern of thought and behavior, may be 'reeled in' to the present. Thus if we were to take this whirlpool of consequence lines and 'flatten it' into a disc, we would create a map of possibility streams, each of which becoming increasingly distinct from the others at further points in time, and ultimately, each of which leading to potentially very different lives, and due to the nature of personal growth, *different individuals*. And if we again reincorporate technology into this picture, it becomes clearer to see that even actions comprising almost no visible movement at all, such as merely sending a new

email or taking a free virtual course, could radically shift our current coordinates on our personal 'possibility map', resulting in a new 'book of you'. Likewise, although we ourselves may not experience their full downstream 'consequence lines', small, unexpected gestures of kindness towards others may catalyze within them a series of thoughts that steers their day in an entirely new direction, and thus shifts their personal possibility map coordinates in a positive, unexpected way. When we stay open to new perspectives and move forward with humility, kindness, gratitude and love, the process of writing the 'book of you' may in turn influence others to take more awareness of their own timelines. "The world is like a novel. It's a novel in which you are a character, and there is dramatic tension, plot, resolution, tragedy, nobility, betrayal -- the whole gamut of emotions. " Terence McKenna

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[1] Herbert, Frank. Dune. 1965. Print.

XXII. JUST A THOUGHT

"Imagination… it's like any other muscle in your body, or like a muscle in your body: the more you practice, the better it becomes." Bob Ross

"The ancients who wished to illustrate illustrious virtue throughout the Kingdom first ordered well their own states. Wishing to order well their states, they first regulated their families. Wishing to regulate their families, they first cultivated their persons. Wishing to cultivate their persons, they first rectified their hearts. Wishing to rectify their hearts, they first sought to be sincere in their thoughts. Wishing to be sincere in their thoughts, they first extended to the utmost their knowledge. Such extension of knowledge lay in the investigation of things." Confucius

Although the precise spatiotemporal position at which consciousness synergistically emerges in human development will not be debated or discussed here, it is still humbling to remember that we were all microscopic once. And from an extremely orderly arrangement of atoms, we aggregated and assembled external resources to seemingly defy the otherwise physical 'melting' into entropic equilibrium. In an abstract, visual sense, the development of every human life is not entirely unlike miniature recreations of the big bang theory, where a

highly ordered, condensed aggregation of atoms rapidly and then gradually catalyzes its expansion.

What we expand into is then capable of an extraordinary degree of self awareness, in terms of atoms and electrons mapping and rearranging other atoms and electrons. Although not a perfect explanation note his frequent usage of "preponderantly" the following examples of sensory-based atomism granted by Buckminster Fuller are quite useful.

"Human Sense Awareness INFRARED THRESHOLD
(Only micro-instrument-apprehensible)

Tactile: Preponderantly sensing the crystalline and triple-bonded atom-and- molecule state, including all the exclusively infraoptical frequency ranges of the electromagnetic wave spectrum's human receptivity from cold "solids" through to the limit degrees of heat that are safely (nonburningly) touchable by human flesh.

Olfactoral: Preponderantly sensing the liquid and double-bonded atom-and- molecule state, including all of the humanly tunable ranges of the harmonic resonances of complex chemical liquid substances.

Aural: Preponderantly sensing the gaseous and single-bonded atom-and- molecule state, including all ranges of humanly tunable simple and complex resonance harmonics in gasses.

Visual: Preponderantly sensing the radiantly deflecting-reflecting, unbonding- rebonding, atom-and-molecule energy export states, including all ultratactile, humanly-tune-in-able, frequency ranges of electromagnetic wave phenomena.

ULTRAVIOLET THRESHOLD
(Only macro-instrument-apprehensible)" [1]

It is then important to note that the intriguing commonality, point of linkage, or conceptual integrator behind the understanding of all of these human sensory threshold ranges is *vision.* More specifically in the case of the learning human mind, each of Buckminster Fuller's descriptions of a different sensory range elicits a series of mental snapshots, or catalyzes the growth of internal imagery of which the mind paints onto its 'background canvas', collectively resulting in the peripherally-blurred (Monet-like) metabolically regenerative experience window. And it may serve as a helpful reminder that the imagery painted onto the mind's canvas may be considerably altered by sensory experiences such as music (which may indeed be thought of as 'packaged visuals') or taste or touch, so remember not to fall too deeply into vision and neglect the richness of experience provided by the other senses!

Awareness of this window through the power of visual abstraction, divided into background canvas and mental paintbrush, then equips us with a new set of creative tools

for which to more deeply explore and understand ourselves, others, and the environment and universe around us. This writing has indeed spent a primary focus on more simplified, geometric abstractions, i.e. the approximately circular metabolically regenerative experience window at a single point in time, or the experience window turning into a 'cylindrical' mind tunnel when run through time, or the collective mind of humanity represented by a square, ~70 by 70 foot, or 22 by 22 meter matrix of billions of experience windows. And yet all of these patterns of imagery arise in roughly the same place. Little has been said about the wonder of the human brain due to its sheer complexity and often mediocre visual representation in textbooks, and due to the author's desire to veer this writing towards the side of abstractions that are, if anything, more practical and functional and useful to any reader. Yet these tools of creation may, of course, be once again turned inwards on themselves to grant essentially no end of understanding or awareness, if desired.

Since this is not a scientific publication or neuroscience textbook, a nudge in the right direction will instead be offered to those who wish to dive further down such a rabbit hole. If we were to move in the direction of imagining a brain at single cell resolution, then we have not only connected meter to micron scales, we may then further zoom in to more intuitively understand the cell in molecular resolution, connecting micron to nanometer

scales, bridging disciplines from physics to psychology. Yet the mind is surely one of the best known examples of synergy of a systemic aggregation of elements and influences and processes for which may be said to be more than the sum of its parts thus it is important not to look for psychology in atoms *unless you can clearly see all of them*, and even then one will fail to see all externally collected patterns of photons and vibrations through the air and chemical compositions on the tongue and so on. Still, there is no particular determined threshold of dynamic detail or complexity of internal imagery at which a single human may stop, further enhanced by the external visuals we create and collect through scientific understanding of the world around us, so as if practicing a cello, we may continue the process of using our creative tools for greater understanding of ourselves and others and the world around and *inside* us.

David Goodsell previously noted that if one was to magnify the tip of their pinky finger to be the size of a small room, then at that point we would be able to see individual cells approximately the size of grains of rice.[2] Using the same logic, if we magnified the human brain with the same scaling so that neuron cell bodies were approximately the size of grains of rice, and their connective axon cords slightly thinner, then the brain itself would be roughly the size of a very large house. If we painted each neuron and its axon cord with a different color, similar to what has been

done with research such as the 'Brainbow' labeling technique,[3] then upon staring into our magnified, 'mansion-sized' human brain, we would be glaring into a *massive pile of wires*. And arising inside this pile of wires are the systems for which produce the creative tools capable of visual self-abstraction; capable of translating the flickering of internal imagery into external reality, and from which the whole of human history and our 'springing forth from nature' has emerged. Thus the nexus of where physics and chemistry and biology and psychology synergistically experiences itself is of where novelty is tried and trialed and simulated before its translation into the world around us.

The mind is constantly in bloom, and for the genesis of each new stream of thought and experience, is capable of nurturing or neglecting, sculpting or discarding, focusing and practicing upon or ignoring, cheering for encore or swan song. Each new pattern that flickers up into the mind may indeed become the genesis of a new goal resulting in a new set of behaviors that become routine, as we oscillate from practice and habit to contemplation and back, and gradually grow and nurture a thought seeded in the mind, to an entity of more permanence outside of the mind.

Yet during this process it may be helpful to maintain enough self awareness as to not become complacent in our understanding to not let our routine become so mechanical, instead of fluid, that we become trapped in the systems of behavior we create. Do not let the mind's clay so

solidify as to fail to perceive the beauty and richness of the world around us do not take experience for granted! And despite how a single human life, or even the whole of human history has seemingly blinked into existence on the spatiotemporal scale of the universe, from this, we each carry within us recordings, or small slices, of the universe itself. And thus instead of allocating too much focus on how we appear in the universes of others, it may be more helpful to remember that we are all metabolically regenerative experience windows (and much more), and collectively construct a much larger 'universe of mind', a collage of sorts, of which only becomes richer and *more aware of itself* with time.

Hope for brighter futures for humanity may in some sense start with greater awareness at the scale of the individual, for heightened awareness of self through direct experience creates a bridge to the awareness of the direct experience of others, especially in instances of severe inequality and suffering. In an abstract sense, society is a product of a kind of mental 'magnetism' universes in bloom at individual and population scales which stretch their influential consequence lines into both past and future. People are products of this 'magnetism', as the experiences we collect 'pull' us physically and socially, into new habits and chains of ideas of which heighten the awareness of, brighten the days of, and reduce the suffering of others. Increased awareness of self and of others often leads to routes of experience, or mind tunnels through time,

which amplify our sense of gratitude and humility and hone us toward behaviors driven by love. Indeed, as said over and over across continent and culture, the more we learn, the more we realize we do not know, so we should not fall into complacency and take the creative tools our minds possess for granted — everyone is given the chance to act out an artistic performance on life's stage, no matter how extravagant or humble.

We get the magnificent opportunity to, in an abstract sense, act out cosmic phenomena on a tiny stage, with our spheres of experience blinking into existence and acting like balls of energy thrown into a massive net and creating a resultant pit, such as how gravity may be visualized. Each pit then throws another energy ball, or sphere of experience, or spirit, into the next generation — into new regions of the 'net' — with the aim of being a stronger throw, and leaving a longer mark in the 'gravity net'. With each generation we get closer to understanding ourselves. Like a bullet that is gradually worn down and slowed by the mechanics of the universe, tearing forth and unmasking and learning and doing and experiencing and loving as much as possible until the fade into entropic infinity is complete, when the realization comes that the fade may just be a mere transcendence, a turned coin, another universe.

In understanding ourselves, others and our universe, we are trying to experience the psychedelic, only naturally. Be it fitness or diet, we hone our vessels' capabilities at integrating the two. At seeing the madness of the universe in a state of organized being.

[1] Fuller, R. Buckminster. Synergetics: Explorations in the Geometry of Thinking, p. 31, 1975.
[2] Goodsell, David S. The machinery of life. Springer Science & Business Media, 2009.
[3] Lichtman, Jeff W., Jean Livet, and Joshua R. Sanes. "A technicolour approach to the connectome." Nature Reviews Neuroscience 9.6 (2008): 417-422.