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Chapter 1

Foreword

It was 11 years ago now that the first seeds of Fatercism were sewn- when I first began to seek an explanation of consciousness. I hoped to arrive at a small realization that might be fit for publication in a scientific journal or at least a magazine, but I could never have foreseen where my inquiry would lead me. My quest for an explanation of consciousness lead me to a new view of the self, and from there – with the help of my friend Patrick Cattell – I was able to arrive at a new model of Cosmology.

I was just preparing to submit my findings to the scientific journal *Nature* when I was introduced through Patrick to Frederick Pearson and Heather Marshall, and it is from there that my findings developed into the full-blown religion it is today. Fatercism is ultimately built upon three realizations – the nature of the self, the nature of the Universe and the nature of knowledge. From here, we can concoct a method for bringing about a better world in which to live. This e-book aims to provide an explanation of all of our findings in the order in which they were discovered. Although a basic overview of our faith can be found at www.fatercism.com, it seems doubtful that an aspiring Fatercist could ever achieve a full understanding of our religion without reading this text.

Some of the arguments made in this book – particularly those in the first 11 chapters - are undeniably well-grounded. Others are somewhat more tenuous, and it is up to the reader to decide whether they can withstand the torrent of scepticism that the intellectually honest will bombard them with. Fatercism is a modern and dynamic religion, and we change all the time. We encourage followers to question everything in this book, and to form their own opinions – whether they are ours, their antitheses or some amalgam of the two. I must take minimal credit for the contents of this e-book. A vast majority of the ideas within were not entirely my own but the results of lengthy collaborations with other Fatercist Gurus, and even then we were simply building upon the knowledge of our forebears. Fatercism is just the next stepping stone in the human enterprise for knowledge.

Before we can tackle many of Fatercism's revelations, we must go on a Tour de Force of science and philosophy – from René Descartes to Albert Einstein; from epistemology to quantum physics. Many readers may feel that the conclusions made at the end of the book are erroneous- that, like Icarus with his wings of wax, we plummet to the ground when we attempt to go too high. However, standing on the shoulders of giants as these, the view is sure to be spectacular

Chapter 2

Consciousness: A Definition

From the day I first learned to think, I have been fascinated by the idea of consciousness. Indeed, it was my pursuit of an explanation of consciousness that sewed the first seeds of Fatercism.

What is this substance that we all have but somehow cannot pin down? How is it that a small part of the Universe- our body- can somehow feel as though it is an observer independent from the rest of reality? There is something deeply intimate about consciousness; it comes from within and can be shared with no other. It was my profound fascination with consciousness that led me to study Neuroscience – in the hope that I could explain how it arises and what, exactly, it is.

Soon after beginning my grasping for answers, I came to realize that my knowledge of the brain was but a starting point. I would need to be better equipped to answer a question such as this. I studied physics, learning of the nature of space and time and the Universe itself. I studied philosophy, giving me a better grasp of the semantics of consciousness. I studied art and literature, gleaning what insights I could from those far wiser than myself who had chosen less direct mediums to convey their ideas.

It took much intellectual sweat, blood and tears to arrive at an understanding, and the answer to such a complex question is – understandably – complex. The question “What is consciousness?” really encompasses two things- a proper definition of consciousness, and an explanation of where it come from. My answer to the former is simple enough to be explained in this chapter alone, but the answer to the latter is somewhat more original and difficult to grasp, and will require the rest of this section of the book to explain fully.

Could a definition really be proscribed to the abstract concept we call consciousness? The Oxford English Dictionary makes an attempt to do just that. It defines consciousness as “the state of being aware of and responsive to one’s surroundings”. I find this definition to be problematic, and so it will not be my own definition of the word. To illustrate its impotence, take an amoeba. Amoebae are simple life-forms, and lack any sensory organs. However, they are capable of responding to changes in their surroundings- temperature and light in particular.

And so our problem emerges! Surely, by the Oxford definition, an amoeba is conscious! If it is responding to changes in its surroundings, it must also be aware of them through some medium (more specifically, using “chemo taxis” to sense chemical attractions). But would we really consider an amoeba to be conscious? The final death-blow is dealt to this definition when we consider an even less sentient example: the Earth itself. Excluding proponents of the discredited Gaia hypothesis, very few people would argue that the Earth is conscious. But through responding to the gravitational attraction of the Sun, it is sensing and responding to its surroundings. Indeed, by this definition of consciousness, almost anything within a system can be said to be conscious!

This contradicts with the normal understanding of consciousness. Consciousness is something more visceral; more intimate. It is something which is felt. Many would propose the alternative definition of consciousness being “self-awareness”, or an observation of the self, but this is no less problematic. Anyone with a video camera and a mirror could then create consciousness by pointing the camera at the mirror, for the camera would be observing itself! It could be argued that it isn't really “self-aware” because all it is doing is converting the light reflected off the mirror into pixels on the screen without any real understanding of their meaning, but suppose we had a very sophisticated camera which was developed especially for filming mirrors. Through a simple computer program, the camera could be trained to spot itself in the image and respond accordingly. It would be, in the most literal sense of the phrase, aware of itself.

We don't consider amoebae or cameras pointed at mirrors conscious. This rejection is not just based on a hunch or a gut-feeling, or an anthropocentric urge to maintain our monopoly on consciousness. It is founded on a crucial aspect of Philosophy of the Mind, first used by Clarence Irving Lewis in his 1929 book *Mind and the World Order*. The concept he introduced was that of qualia. In his book, Irving writes:

“There are recognizable qualitative characters of the given, which may be repeated in different experiences, and are thus a sort of universals; I call these “qualia.” But although such qualia are universals, in the sense of being recognized from one to another experience, they must be distinguished from the properties of objects. Confusion of these two is characteristic of many historical conceptions, as well as of current essence-theories. The qualia is directly intuited, given, and is not the subject of any possible error because it is purely subjective.”

What Irving was talking about are the building-blocks of subjective conscious experience. Things like the colour red, or the taste of chocolate, or the sound of F# played on a Grand Yamaha piano. The concept was seized upon by philosophers, and one of the most succinct definitions was provided by prolific thinker Frank Jackson in his 1982 paper “Epiphenomenal Qualia”. He defined qualia as “...*certain features of the bodily sensations especially, but also of certain perceptual experiences, which no amount of purely physical information includes*”. To understand this definition, let us take an aforementioned example- the colour red.

Physicists know that the colour red is distinguished from other colours (and, indeed, from radio waves and x-rays and all other electromagnetic waves) by its wavelength and frequency. But does this explain the sensation of seeing the colour red? Why, to any one person, the colour red does not appear to be what another person might call green? The fact is, there is nothing in the physical description of red light- or the source of any other qualia- that means it should look a certain way to each observer. That is ultimately a question of neuroscience. This was put eloquently by physicist Erwin Schrodinger, who even went as far as to doubt that neuroscience could ever explain qualia: *“The sensation of colour cannot be accounted for by the physicist's objective picture of light-waves. Could the physiologist account for it, if he had fuller knowledge than he has of the processes in the retina and the nervous processes set up by them in the optical*

nerve bundles and in the brain? I do not think so."

All qualia are detected by our bodies' sensors: whether by the olfactory detectors in our nose, or the retinas in our eyes, or the taste-buds in our mouths, or even the synapses in our brains (as is the case with emotions, upon which most philosophers would bestow the status of qualia). They are converted to electrical impulses in the brain, and this is how we experience them.

As should now be clear, the concept of qualia is crucial to the concept of consciousness. We don't decline to view a camera or an amoeba as conscious because they are not aware of themselves or their surroundings. We define them as non-conscious because they do not interpret such awareness as qualia. With qualia in our arsenal, we are almost ready to formulate a working definition of consciousness.

Qualia are the engines of the conscious experience, but they are not the only necessary ingredient. There is something which we all call the self, which experiences only my own qualia. It seems obvious, but it must be noted that I am me and not you! Consciousness is entirely subjective. As well as this exclusivity between conscious individuals, we need to include the concept of a flow of time in any complete definition of consciousness. I am conscious only in a specific moment in time which I call the "present". From my perspective, I am not conscious 20 minutes ago and I am not conscious 20 minutes in the future.

Ascribing a definition may be premature, but there are three apparent features of consciousness:

- 1) Qualia- the fundamental building blocks of consciousness. They turn knowing into feeling.
- 2) Local to specific moments in time. A conscious observer has a past, present and future.
- 3) Subjective to individuals. We feel we are experiencing something that the rest of the Universe isn't. I am me, not you.

Now that we know what we're looking for, we are ready to embark on the Promethean endeavour of explaining i

Chapter 3

The Irrefutability of the Self

In the interests of philosophical rigour, there is a task that must be completed before we embark upon explaining consciousness. We must prove that consciousness can actually be shown to exist, and therefore that it is a subject worthy of study! To find our proof, we must travel back in time to the 17th Century- the site of a great intellectual conflict between Positivism and Existentialism.

Philosophy in the 17th Century was dominated by this conflict. Both schools of thought are “epistemologies”, which means that they are theories of knowledge, distinguishing that which can be said to be true and that which cannot, as well as analysing the ultimate nature of knowledge. Each takes an extreme view about the nature of objective reality and what could be said to exist.

Positivism teaches that the sole source of information about the world is that which can be interpreted through our sensory information: that which you can see, hear, smell, feel or taste- directly or indirectly. This might sound highly restrictive, but there is one exception- mathematical or logical manipulations of information we glean from sensory input. To illustrate this, take an example. Imagine that a supermarket has 172 bags of flour, and wanted to find the weight of all the bags of flour together. One might initially conclude that Positivism demands the weighing of all of them, but this is not so. By the permittance of mathematical manipulation, it is perfectly acceptable to weigh a single bag of flour and multiply this value by 172 to find the total weight. Logical manipulations are a similarly powerful tool we are permitted to use under Positivism. Through logical manipulations, we can glean far more from a piece of information than exists at face value. Imagine a detective trying to solve a murder mystery. He might spot blood on the hands of a suspect, or even find the murder weapon in their possession! The Positivist detective may seem to refuse to convict the individual, since he did not observe the murder through his senses. However, he did observe things which can lead him to the logical conclusion that the suspect is guilty (and very poor at concealing incriminating evidence!).

Positivism insists that the source of empirical information must be our sensory experiences, but it allows operations to be performed upon this information- whether they are mathematical, logical or a combination of both- in order to expand its scope. This system has proven to be effective- indeed, it is at the root of the scientific method which has told us so much about the world.

However, Positivism runs into problems when it turns its gaze to our field of study- consciousness. No-one would dispute that Positivism allows for one's own physical existence- after all, we are able to observe ourselves through all five senses (though some through more cannibalistic means than others!). However, can you observe your mind; your consciousness? To a strict positivist, the sense of self that defines us as sentient beings cannot be said to truly exist.

In a complete reversal of this, Existentialism postulates that nothing but the self can be said to truly exist. This is based on the idea that our senses can be misled. Reality is a prolific illusionist, and to place faith in the information provided to us through our senses is naïve. Like the proverbial brain in a jar, we could all be receiving completely erroneous information about reality through our senses. Thinking starts with the thinker, and if it places too much value on errant information received through the senses it can be led astray. The only ultimate truth which cannot be disputed is that we exist. The brain might be floating pickled in a jar, or it might just be a subroutine in The Matrix, but there is still something which gives rise to this abstract thing which we call the self.

As is often the case in academe, these opposing beliefs were at a stalemate for centuries. Each was dogmatically adhered to or fervently opposed by different philosophers on account of whimsical hunches and private prejudice. To others, the most sensible viewpoint to take was one of agnosticism on the matter, for neither viewpoint could be conclusively validated. This philosophical battleground played host to a battle of minds that lasted for centuries, until Existentialism's champion- René Descartes- brought it to a close with a single, elegant piece of logic.

Born in 1596, Descartes' influence upon western thought is matched by few and surpassed by none. To mathematicians, he is perhaps best known for his Cartesian co-ordinates system which allows algebraic descriptions to be expressed visually- a crucial development in analytical geometry which was later the basis for Isaac Newton's invention of infinitesimal calculus and many of his discoveries in physics. However, Descartes' work in philosophy was equally influential, and his Magnum Opus is often considered to be his iconic phrase from his book *Meditations on First Philosophy*: "Cogito Ergo Sum". I think, therefore I am.

Cogito Ergo Sum is the end-point of a line of reasoning which validates Existentialism over Positivism. To do this, he used the argument of *Reductio ad Absurdum*- reduction to absurdity. When arguing by *Reductio ad Absurdum*, one assumes that the claim they are trying to disprove is correct and thus demonstrates that logical inconsistencies arise. So, Descartes assumed that Positivism was correct. If this was the case, there would be no Cogito; no self. In doing so, he doubted his own existence!

However, this is logically incoherent. If he doubts his own existence, there must be a he to do the doubting. If he is thinking, he must exist. Cogito Ergo Sum. I think, therefore I am. In a groundbreaking piece of simple, elegant reasoning of a beauty that has rarely been surpassed, Descartes had demolished the opposing school of thought and put Existentialism on a pedestal that could not be contested. The self is very real. Through his verification of Existentialism, Descartes had done more than just prove that the self exists. He had proven that it is the only certain reality (an epistemology called *Solipsism*), and placed the question of its nature on a tier higher even than the nature of the Universe itself.

Logical proof aside, there is something deeply uncomfortable about the knowledge that nothing but the self can be proven to exist. How do we know that anyone else is even

conscious, or that we are not just a brain in a jar? Answers to these questions will be found in Chapter 11, but to get there we will first have to arrive at a greater understanding of the self. Our first stop will be my personal area of expertise, and one of the sole pieces of reasoning in this book which I was not helped in the forging of! If we are going to understand consciousness, we must first understand the fuel that gives the conscious experience its kick: qualia

Chapter 4

Qualia: Their Nature and Origins

Qualia are an integral part of the conscious experience. They are what distinguish us as conscious beings from an amoeba, or a video camera filming itself. They turn knowing into feeling. Without qualia, it is hard to see how the world could be approached with anything but apathy. It is clear that we will need to explain qualia as part of our Theory of Consciousness. Before looking at the origins of qualia, though, it is helpful to have a deeper understanding of their nature.

Daniel Dennett is an American philosopher and cognitive scientist who has spent the majority of his impressive career using his scientific knowledge of the brain to make advancements in the Philosophy of the Mind. Most known for his work on questions of free will, he has also tackled the concept of qualia. He gave the following four features that are universal to all qualia:

- 1) Ineffable: they encompass more than can be described by words alone.
- 2) Intrinsic: they are essential part of a thing's nature.
- 3) Private: qualia cannot be compared between people. I can never know if my red is the same as your red.
- 4) Directly or immediately apprehensible in consciousness: when someone experiences a quale they know that they have experienced a quale, and also what type of quale it was.

The first feature is fairly self-explanatory. A quale cannot be described fully; only felt. If you don't believe this, try to describe the colour red without being circular or relying on our previous knowledge of having seen red (saying "the colour of blood", for example, would be cheating!). It is infuriatingly difficult to pin down the appearance of red, or any other colour. Even when talking about the flavour of food, our descriptions are rife with simile: "It tastes like chicken", or "It's a lot like chocolate". In fact, it isn't just difficult to describe qualia accurately- it's impossible! The feeling of qualia is so intrinsic to their nature that no words could ever encompass all their facets. The only way to know a quale is to feel it.

This is very aptly put by Frank Jackson's "Knowledge Argument". In his renowned work *Epiphenomenal Qualia*, he provided the following fictional account:

"Mary the colour scientist knows all the physical facts about colour, including every physical fact about the experience of colour in other people, from the behaviour a particular colour is likely to elicit to the specific sequence of neurological firings that register that a colour has been seen. However, she has been confined from birth to a room that is black and white, and is only allowed to observe the outside world through a black and white monitor. When she is allowed to leave the room, it must be admitted

that she learns something about the colour red the first time she sees it — specifically, she learns what it is like to see that colour.”

Mary knows everything there is to know about red light, but she still doesn't know the quale of red - the subjective experience of seeing it- until she actually experiences it for herself. As is explained in Jackson's definition of qualia, it is something which “no amount of purely physical information includes”. Perhaps a direct result of this is the third feature of qualia- their privacy. Comparisons of qualia between people are impossible, as illustrated by the unanswerable question: “Is my red the same as your red?” Might it not be that what we see as red is what someone else sees as green? We can't experience another person's green or red, or describe ours to them verbally (since qualia are ineffable!), and so comparison is impossible. Empathy in the realm of qualia is impossible.

The other two features of qualia are fairly self-evident. The second feature of Dennett's definition of qualia notes their universality throughout any one consciousness' experiences. I can see a red bus, or a red rose, or a red steak tartare. These things are all different, but the colour red persists and is always the same. Finally, Dennett's fourth feature is about their recognisability. When we experience a quale, we know we have experienced a quale, and even what type of quale it was. When we see something, we know it was a sight. When we hear something, we know it was a sound. When we taste something, we know it was a taste. It's as if there is something in our brain that categorizes our sensory experiences; tying together sights as different as red and green, or tastes as different as chocolate and celery.

In neuroscience, a schoolboy error is to try and look at the brain in a localized way. When trying to locate the neurological origins of consciousness, for instance, many have made the mistake of searching for a “seat of consciousness” - only to be disparaged in recent years by the discovery of just how interconnected the brain is. With qualia, though, localized brain functions are the key to understanding.

To begin, let's take a single sense- sight. As even a child could tell you, sight comes from our eyes picking up light. Light reflects off of objects around us, passes through the lenses in our eyes and reaches the retinas. From there information about the light is encoded as electrical impulses and is sent along the optic nerve to the brain. This information is then handled by the visual cortices (one in each of the brain's hemispheres) to produce what we see as an image. Another example is taste. Information about a food's taste in the form of chemicals is detected by our taste buds' receptor cells and is sent as electrical impulses to the gustatory cortex of the brain. Sound is similar- vibrations in the ear drums are sent to the auditory cortex. Touch and smell are no different. Even emotions are handled by a specific part of the brain- the hypothalamus, amygdala and the rest of the limbic system. This is how we can tell sight from sound, or taste from touch, or smell from emotion - the different types of qualia are produced by different parts of the brain, and so are easily differentiable!

A quale is created when a sensation becomes a perception. Sensation is the detection

of something by our senses- light coming into our retinas, or sounds vibrating our ear-drums, or tastes exciting our taste buds. Through the processes in the brain, these sensations become perceptions- things which we call qualia, and are subjective experiences. Neuroscience is a new science, and it is unsurprising that the exact processes behind this are not fully understood. However, the exact phenomenology in the brain will not be important for the central revelations of Functionalism.

There is still one question that remains: what evolutionary function does perception fulfil? As an evolved object, the brain has been sculpted by natural selection. This means that everything it does has to have some evolutionary value. It has to do something, increasing the functionality of the organism. Nothing is purely for aesthetics; biology is a staunch utilitarian. So what do qualia achieve? Why not have the sensations and leave it at that? Where does the need for perception come from?

This question was briefly addressed by Professor Richard Dawkins in his 2009 book *The Greatest Show on Earth*. Looking at the specific quale of pain, he asked the question: "*Why does it have to be so damn painful?*" He raises a fair point. Pain exists to warn us of danger; a rock piercing our skin, or hot coals burning our feet, or liquid nitrogen freezing our blood. This is its function. But why does the quale have to be so distinctly uncomfortable to achieve this? Couldn't there just be a voice in our head that replaces pain, shouting "STOP!" whenever we are endangering our bodies? Dawkins asks why we don't just have such a "red flag" mechanism- something which warns us of the danger but doesn't need to feel unpleasant.

Imagine if we did have such a "red flag" mechanism in place of pain. Imagine if every time you were putting your body in danger- touching a hot stove, for instance- there was just a voice in your head telling you to stop. Would you really pay as much attention as if there was a searing pain shooting through your hand and up your arm? Would you haul your hand away from that stove with as great fervour? The evolutionary advantage of pain as a perception rather than sensation is clear. Indeed, it explains why pain has evolved in our brains so that it can sometimes last for days- our unconscious is telling us "Don't you dare do that again!"

The same is true of all other qualia. We have evolved to be attracted to high-calorie foods, as we evolved in an environment in which the ability to find sufficient sustenance is an immense selection pressure. Imagine if there was just an approving voice in our heads each time we ate a chocolate bar, saying "That was a good thing to eat!" Would chocolate be nearly as ubiquitous as it is? The fact is, qualia are the most effective methods of communication between our sensory cortices and the brain as a whole, which makes up our consciousness.

With the evolutionary driving force behind qualia made clear, a crucial aspect of the conscious experience has been explained. The reason we feel so independent from the rest of the Universe despite being part of it is because our brains make use of qualia as messengers, and qualia are intrinsically subjective. Through their inclusion in the mechanics of the brain, the process of feeling is added to our brain's comprehension of

the world, and therein lays the first ingredient of consciousness.

With a reasonable explanation of the existence of qualia, we are ready to embark upon the next phase of our journey- the inclusion of time in the conscious experience. This is where the first real revelations of Fatercism lie. Before we can integrate time into the conscious experience, we must first come to an understanding of nothing less than the nature of space and time – the arenas in which we play out our lives.

Chapter 5

The Space-Time Continuum

In our study of qualia, we have made great strides in our understanding of consciousness. The exact neuroscience behind the act of feeling may still be beyond our grasp, but we understand why it is that we feel. Mysteries remain, though. Why am I (whatever I am) me and not you? Why am I conscious in the present rather than yesterday, or tomorrow? To answer these questions, a gauntlet lies before us: to understand the nature of space and time itself!

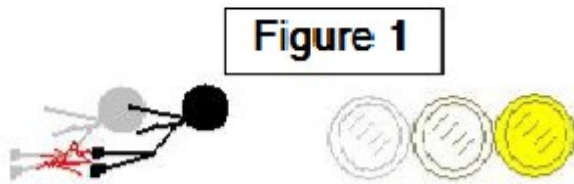
When people think of space-time, they most often think of Albert Einstein. However, humanity's inquest into the fabric of reality began long before this. Some of the first thinkers to launch their mental probes deep into Nature's heart were the early Greek atomists. As early as 450 BCE, they defined space as the "ether"- an actual substance which occupied the otherwise empty void between points of matter. This view was called Absolutism and had a monopoly on the study of space and time for around 150 years. As is so often the case, our understanding began to progress more rapidly when an opposing school of thought was founded; launching both sides into an arms race to accumulate evidence, empirical or theoretical, to support their view.

One of the first proponents of the opposing view, Relativism, was Greek philosopher Zeno of Citium. Around 300 BCE, he argued that space and time do not exist. He observed that they could neither be acted on by nor act upon matter. Without any interactions with the physical world, how could a claim of their existence have any real meaning? Was it not an untestable, and so invalid, claim? Like Existentialism and Positivism, these theses were doomed to undergo a lengthy conflict. Fierce punches were thrown from both sides, and vast advancements were made in our understanding of the world in which we live as a result of their feud, but neither could score a knockout. Even our acquaintance René Descartes failed in his attempts at constructing an epistemic death ray for his chosen armada: Relativism.

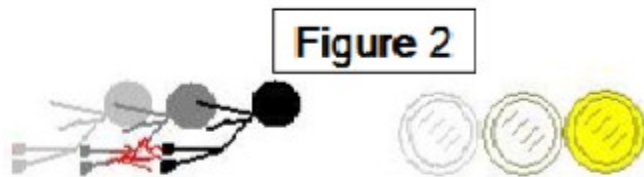
This millennia-long intellectual war finally came to a conclusion in the early 20th Century, thanks to the work of physicists and mathematicians such as Albert Einstein, Henri Poincaré and Hermann Minkowski. The truth was finally uncovered with Einstein's 1905 Theory of Special Relativity, which looked at how objects moving at constant speeds interact.

To illustrate its central concept, imagine a pie flying through space at 100 km per hour. Now, imagine that there is a very hungry astronaut nearby. There is just one problem: The astronaut's rocket boots give him a maximum speed of 100km per hour! In hunger-fuelled naïve desperation, our astronaut launches himself at the pie at just below his maximum speed- 99km/h. Anybody with an ounce of intuition could tell you that the astronaut will never reach his beloved pie, since it is moving faster than he is, but what would he actually see?

Shown in Figure 1, it would be every pie-enthusiast's worst nightmare! Like a dream where you run but get further away from your destination, the pie would move slowly away from him (at 1 km/h – the difference between their speeds - to be precise).



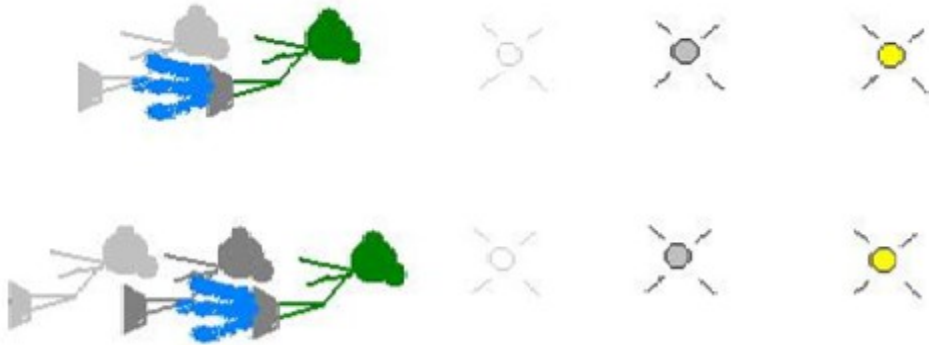
Infuriated by the pie's mockery, he twists the accelerator on his boots. They roar, nudging him up to his maximum speed- 100km/h. He is flying through space 3 km/h faster than a cheetah can run, but he gets no closer to his pastry prize. It would appear to be stationary (Figure 2)- and no doubt he would find its passive aggression even more infuriating than its former retreat!



As well as rending the hearts of pie enthusiasts reading this book, the account demonstrates a fundamental truth about the nature of space. If two objects are moving at the same constant speed, there is no way to tell without a separate frame of reference whether they are both moving or both at rest. In fact, the very laws of physics are unchanging for objects moving at a constant speed. This is why roller-coasters feel so exhilarating when moving as slowly as 60 km/h, while far greater speeds on a motorway are anything but- unlike the roller-coaster's constantly changing speed, the car maintains a fairly constant velocity, and so- to those inside the car- it is equivalent to being at rest.

The first section of Einstein's Theory of Special Relativity concerned the laws of physics for objects moving at constant speeds. The second, far more profound, comes from trying to apply this to the speed of light. Imagine that our pie was replaced by a beam of light, and our hungry astronaut by some sort of botanical alien which feeds through photosynthesis. This species is far more technologically advanced than humanity, and so the alien is able to accelerate to a far greater speed- 1km/h less than the speed of light (around 300,000km/h)! For all of our alien's sophistication, hunger usurps his reason and he takes off on a doomed quest to catch the beam of light. We might expect that, as before, the beam of light would move away from our hungry alien at the difference between their speeds- 1km/h. Why wouldn't it? Einstein argued otherwise. He said that the speed of light is the same for all observers, regardless of relative motion (Figure 3).

Figure 3

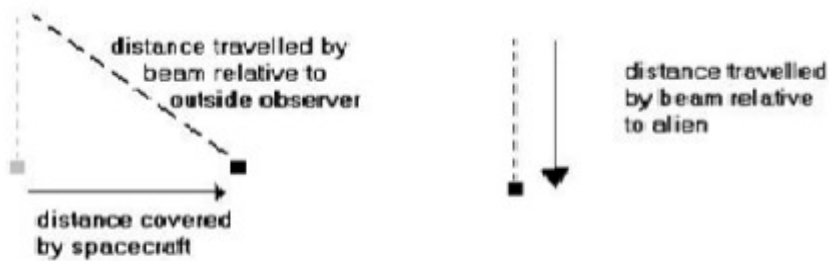


No matter how fast our alien chases the beam of light, it will continue to race away from him at the speed of light. This may sound crazy, but it has been tested and verified both mathematically and experimentally on countless occasions.

How can this be reconciled with our intuition? Well, it turns out that different observers can see contradictory things- and can all be right! This is exemplified by a scenario in which our alien astronaut finally realized the futility of chasing the light-beam, and returns to his spaceship. In the ship's resident restaurant, he purchases a beam of light (for nothing less than the extortionate price of 750,000 Gigjabyaajafalafatacacks- equivalent to about \$30!). Since his meal is a beam of light, it can hardly be served on a plate. Instead, each table has a laser-beam installed above. The hungry alien opens his chloroplast-filled mouth and the light is beamed in from above. The beam of light takes a straight path down into his mouth and he feasts upon its photic delights.

However, we have to remember that the alien is on a highly-advanced spaceship! Let's assume it is moving at three quarters of the speed of light. The light beam will now have to travel a longer distance (Figure 4) to reach him. The speed of light is constant, so we know that it can't travel faster to make up for this. But by Einstein's relativity principle, it also has to take the same amount of time to travel the distance- the spaceship is moving at a constant speed and so it should be impossible for those inside to tell whether it is moving or stationary, as the alien would be able to if his meal was delayed. The Universe itself has a responsibility to ensure that he gets his meal no less quickly as a result of the ship's motion. But how does it do this?

Figure 4



Things become even more complicated when we introduce an observer outside the rocket. Our pie-chasing astronaut from earlier has finally abandoned chasing the pie and is standing in awe at the alien spacecraft he has encountered. To him, the light-beam has clearly had to travel a longer distance, and- mind-bendingly- he will measure it as having taken a longer amount of time to do so than the alien will. Unlike for the alien, the spaceship is moving relative to him, and so no violation of Einstein's relativity principle can be found in his observations. It also matches up with our intuition- the light has had to travel a longer distance at the same speed.

This is something of a paradox. It might have puzzled physicists for decades if not for Einstein's piece de resistance- time itself is relative! Time slowed down inside the rocket. The faster an object moves, the slower time passes. This is so counter-intuitive and bizarre that the first instinct of the reader may be to reject it, but there is much proof available. For instance, much information is available online about the Ives-Stilwell Experiments of 1938 and 1941 which proved this principle beyond reasonable doubt. Added to the mathematical evidence, the relativity of time becomes a scientific fact.

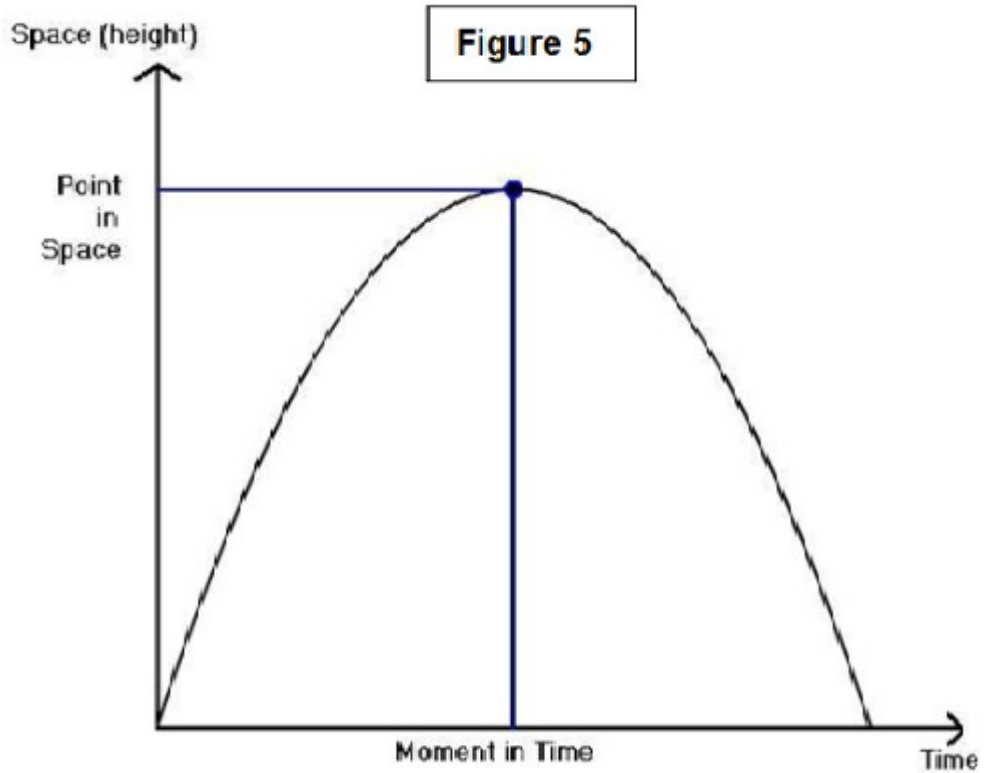
But what does it really mean to be relative, and what implications will this have for our picture of the Universe? Relative is defined as "In relation or proportion to something else". What fits this definition better than dimensions? I can move up or down, but whether I am high or low depends upon whom or what I compare myself with. The same goes for moving left and right. Or forwards and backwards. Or my position in time! For example, my tenth birthday is history to me now, but when I was nine it was clearly in my future. This is the golden nugget of wisdom our inquisition into Special Relativity has been seeking. Time is the fourth dimension, just like the three spatial dimensions. This is an uneasy truth that has been right under our noses our whole lives.

When meeting a friend for lunch, how many pieces of information do you have to give? Let's assume you're meeting for a picnic in the wilderness, where there are no street names to go by. You would have to give longitude and latitude, or perhaps a 6-figure grid map reference- effectively left/right and forwards/backwards. You might also have to give height above sea-level, or contour lines on your map- up/down. And you would have to give a time!

Looking at time as the fourth dimension allows for the Universe to be viewed as something called the “space-time continuum”. In this brave new world, time is fundamentally no different to the other dimensions- and the past and future are just as real as the present (which is only relative!). It turns out the Absolutists were right about the physical reality of space and time. They are interwoven to form the 4-dimensional fabric of the Universe, and it is in this flexible fabric that we all play out our lives.

Regrettably, the human brain is only capable of visualizing three dimensions, and so- when depicting space-time- we shall have to pretend that we live in a Universe like Edwin Abott’s *Flatland*. This fictional world has but two spatial dimensions- up and down and left and right. In place of forwards/backwards in space, the third dimension in this Universe is forwards/backwards in time. Physicists use a similar method of visualisation when drawing space-time diagrams, called “Minkowskian Space-Time Geometry”. Sometimes, only one spatial dimension is needed, and so we can have a 2D space-time diagram (one space and one time).

Figure 5 shows a simple 2D space-time diagram depicting a ball which has been thrown upwards. We have suppressed two of the three spatial dimensions as we are only concerned with the ball’s height. As it moves upwards in the spatial dimension, it also moves forwards in the time dimension. It then begins to descend back down to Earth, and so starts to move downwards as it progresses through the temporal dimension. Just as we can take a cross-section through the spatial dimensions to obtain a parochial locality – a specific point in any spatial dimension – we can also take a cross section through time to obtain a specific moment. The size of the smallest cross-section possible is called the Planck-distance, and this is the smallest unit of each dimension



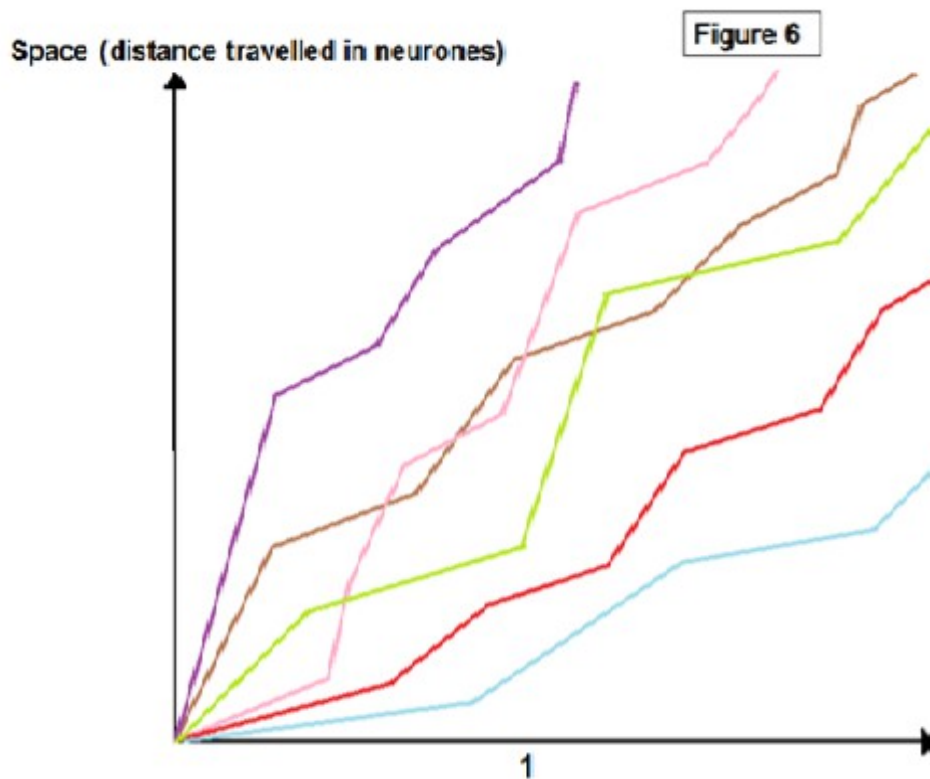
What would happen if we tried to depict consciousness in the space-time continuum? Could this shed some light on consciousness' apparent locality in time, and perhaps its isolation to each individual? It turns out that this task is far more complicated than it seems, but if we can complete it, it may provide the key to our explanation of consciousness.

Chapter 6

The Fatercist Model of Consciousness

Consciousness is formed by electrical impulses in our brain. Electrical impulses are generated by the cells that make up most of the tissues in the brain- neurones- and are then transmitted along them. When these electrical impulses reach a synapse (the meeting point between two neurones), they are converted to chemical messages which diffuse across the boundary and are converted back into electricity to continue their voyage.

In this sense, depicting consciousness in the space-time continuum should be easy. We just need to depict the passage of electricity in our brains over time. However, there is a small problem. The human brain has, on average, 85 billion neurones! Clearly it will not be practical to produce a space-time diagram of the brain showing every neurone, so we shall have to economize and pretend that our brain only has a few neurones. We will be using a 2D space-time diagram, as our electrical impulses are not free to move anywhere- they have to follow the path of the neurone, which essentially restricts them to move in only 1 spatial dimension. Such a space-time diagram is depicted in Figure 6. The y-axis shows the total distance travelled in neurones by a particular electrical impulse in the brain, while the x-axis shows time.



As you can see, electrical impulses will always travel forwards in time. They can travel at different speeds (shown by the gradient of the line), and each time an electrical impulse changes speed (each bend in the line) is where it is passing through a synapse to a

different neurone. Note that this space-time diagram is by no means a realistic representation of electrical activity in any portion of the brain, and is purely to illustrate a point.

Would this provide an accurate schematic description of consciousness? I think not. Are you conscious in the past, or the future? No! Each moment of consciousness is isolated in the present, and so we need to take a specific moment in time. As mentioned in the previous chapter, it is possible to take a single moment in time from a space-time diagram by taking a single point on the x-axis. As an example, we will do so on at point marked "1" on the above diagram. Of course, we would actually have to take a far smaller cross-section to represent a single moment in time. Recall the concept of "Planck distance" from the previous chapter- the smallest unit of measurement for any dimension. For the temporal dimension, the Planck distance is called the "Planck time". If we were to actually take a cross-section of the Planck time, the tiny points that it would depict would certainly be invisible to the naked eye!

Figure 7 is over-simplified to the point of absurdity, but what it represents is nothing less than consciousness itself! When people think of their consciousness, they think of the totality of their lives. A shift from this paradigm of thought is needed. As was espoused earlier, we are not conscious in the past. We are not conscious in the future. We are only conscious now. So where does the flow of time that we all experience come from? I have memories of the past – I was still myself at another moment in time, even though the neural states in my brain were completely different. There must be something else tying all of these different snippets of consciousness together into a single flow of time.

Figure 7

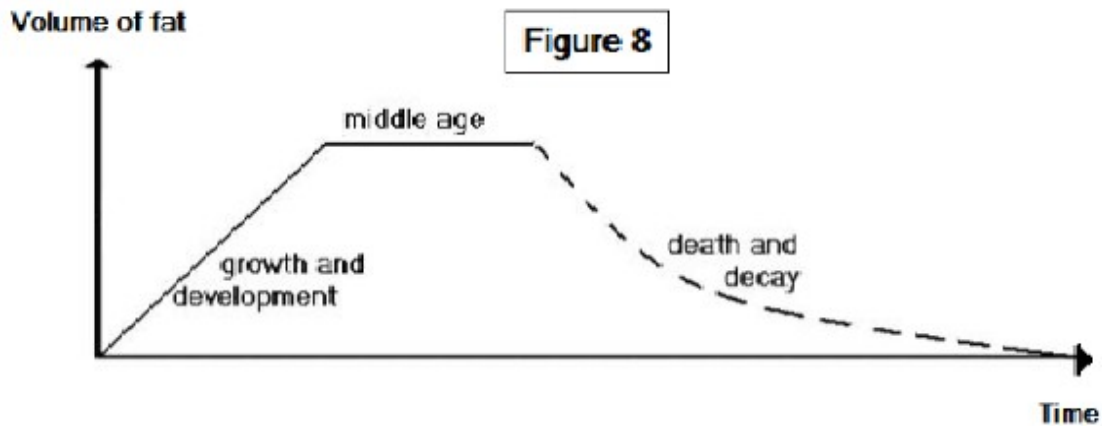


I call each of these moments of consciousness *Transiences*, for obvious reasons- they are as transient as something can get! They allow us to explain most of the experience of consciousness (or, at least, leave a gap for Neuroscience to do so), but they can provide no explanation for the flow of time. To find an answer, let us look at the source of our thoughts. Our thoughts are electrical impulses, and thus are comprised of energy. Although our thoughts are usually fuelled by the direct products of our respiration, energy from respiration is sometimes stored as fat where it can be reused later – even in the production of a thought.

So here's the bombshell: fat is crystallized consciousness. Consciousness in the brain is

a passing, transient substance. It cannot be felt, or touched, or even exist for more than a moment. Fat has the potential to become a Transience, and since it exists for longer than the Planck time it can serve as a seam to tie all of our Transiences together. The fat reserves in our body are constantly being converted to energy, and so every thought has a small amount of energy from our fat in it. Every thought we ever have is influenced by this non-transient object which is unique to the individual. This is why I am me and not you- because the fat influencing our thoughts comes from different bodies. I am reluctant to use the word "soul" for its ethereal connotations, but if there is such a thing then this is it.

I call the 4-dimensional manifold of our fat in space-time our *Permanence*. This name is somewhat misleading- it is not permanent. It had a beginning very early in our foetal development, and it will end shortly after our death. Compared to our fleeting thoughts, though, it is very much a permanent object! An average Permanence could be represented in a space-time diagram like in Figure 8, where all three spatial dimensions are combined into one - volume. The volume of our Permanence starts very small as we develop in the womb, then grows as we age and grow fatter, and then finally starts to fade away after death.



If Transiences are considered to be single frames of consciousness, the Permanence is like the video – tying them all together into a single seamless event that lasts for an extended period of time. If we had no crystallized consciousness, each moment of our lives would be an entirely different person – it would be, as Bertrand Russell once mused, as though we “had come into existence five minutes ago, with memories in our heads and holes in our socks.” Through our bodies’ stores of fat– something which has evolved purely to allow us to store energy for later use– we can become the conscious beings that we are, which includes a flow of time.

As should now be clear, there are two parts to the self- the many Transiences and the single Permanence. But which is really us? This is where things become more speculative, and answers become more elusive. Fatercist Gurus are grappling with this question to this day, but I might offer up the following nugget of wisdom: what the average person thinks of as the self is found in the Transiences. We think of the self as our thoughts and feelings; our qualia. These are found in the Transiences- after all, our fat does not possess a central nervous system and so cannot produce qualia. However, without the presence of crystallized consciousness in our body tying all of our Transiences together, we would be a different person at every moment.

A Permanence may not be conscious in our visceral understanding of the word, but fat is the fuel of the self and it is what gives each of us a separate identity. Ultimately, consciousness lies somewhere between the Transiences and the Permanence. On this topic, a quote from Hermann Minkowski concerning space-time comes to mind:

“Space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality.”

The same is true of the Transiences and the Permanence. Alone they are stifled and impotent. It is only through their interactions that we can become the conscious beings that we are

Chapter 7

A Grand Question Still

After I had explained consciousness, I found my thirst for knowledge increased tenfold. There has always been a fire inside me pushing me towards a search for truth, but in trying to douse it through an understanding of consciousness I merely added more fuel. I understood the self, so what next? What grander question could I pursue?

After much deliberation, I determined my next area of study: the nature of the Universe. I didn't set out to devise a Grand Unified Theory, or to solve the Navier-Stokes equations. I am not a mathematician or a physicist. What I was looking for was not an accurate description of the Universe, but an explanation. As soon as I had consolidated my ideas about consciousness, I set out to answer this question. Shortly after, though, I faltered and abandoned my task. I was dissuaded by humanity's intellectual history. Throughout human academe, our attempts at answering questions about the Universe have always been hampered by our anthropocentric urges to view the Cosmos as an extension of ourselves rather than the other way around. From the Ptolemeian model of Cosmology to the mass cultural delusion of Astrology, we love to put ourselves right in the centre of the Universe. Wasn't that what I was doing? I had made an insight into the nature of human consciousness and was now trying to use this to understand the Universe as a whole. I was surely doomed to fail, or to produce delusional ramblings. Rather than humiliate myself, I gave up.

In those early days, the only person whom I spoke with about my studies was my good friend Patrick Cattell, a computer programmer by day and an amateur physicist by night. Whenever I arrived at a new insight in my pursuit of an explanation of consciousness, I would grab my notes and stationary and pay him a hurried visit. Holding my notes to my chest in an awkward bear hug, and leaving a trail of pens and pencils in my wake, I would sprint excitedly to his house to discuss what I had discovered and eagerly await his almost omniscient judgement. When nonsense stewed in the cooking-pot of my mind, he would add his wise seasonings and set me on the right tracks. When the next insight was just beyond my grasp, and needed expertise outside that which I possessed, he would lift me high above his shoulders that I may continue on my journey.

And so it was with Patrick that I first discussed my concerns about the task of devising an explanation of the Universe. "I am no better equipped than the next person," I confided, "for all I have explained is a tiny fragment of the Cosmos!" He let out a grunt steeped in sophistication as only he could produce as he caressed his thick ginger beard, lost deep in thought. I waited eagerly for his reply, and those minutes of waiting were some of the longest in my life. He would open his mouth as if to give an answer, but then would close it and resume his thoughts. I could stand the waiting no longer and opened my mouth to ask his opinion, but I was cut short.

At last, his eyes brightened and his mouth widened into a grin. "You're really onto something here!" he declared in his rich Scottish brogue. That was the start of our long

conversation that went deep into the night. Working mostly by myself, an explanation of consciousness took me nearly five years to arrive at, but Patrick and I completed our model of Cosmology- Lipophysics- in a single night. Most of that time was taken up with Patrick trying to help me understand the concepts! It turns out that consciousness and the Universe are intertwined in the strangest ways imaginable. Somewhat counter-intuitively, if we are to understand something as large as the Universe, we will first have to acquaint ourselves with the world of the very small: quantum physics.

Chapter 8

The Quantum World

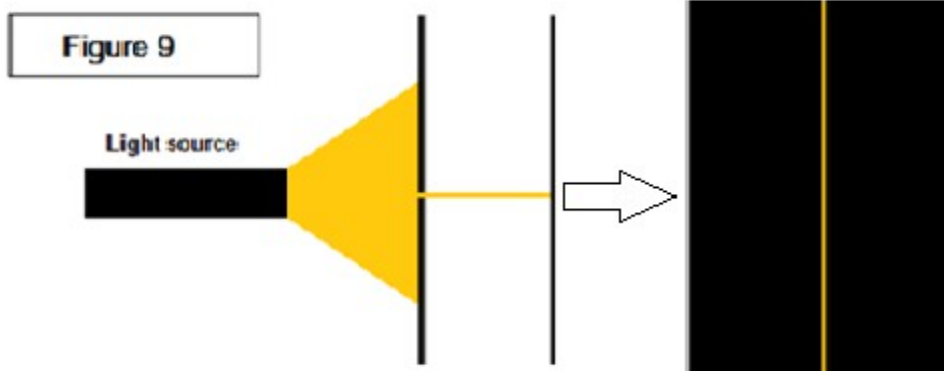
Quantum physics originated in the early 20th century and is perhaps the most important theory ever to be composed. It generally describes only the world of the very small—more precisely, atoms and anything smaller. Without quantum theory, there would be no molecular biology. There would be no genetics or genetic engineering; no lasers or elementary chemistry. It is a prolific and utile branch of Physics that has influenced fields far outside its own initial scope.

For all its usefulness, quantum physics has proven remarkably unpopular amongst its creators. Albert Einstein, who laid its early foundations with his study of the photoelectric effect, famously rejected its conclusions with the rebuttal “God does not play dice!” Erwin Schrödinger, who developed much of the mathematics behind it, said of quantum theory: “I don’t like it and I’m sorry I had anything to do with it.” Their unease with quantum theory is understandable. The quantum world is entirely different from the macroscopic world in which we live, and the conclusions it reaches are so bizarre that they destroy our preconceptions about reality and may leave even the most open-minded individual dumbfounded and in denial. It would neither be practical nor necessary to go into an in-depth description of all of quantum theory here. We will only need to look at the effect of quantum decoherence and the concept of a wave-function. I apologize to the more erudite reader for any technical errors which remain in this chapter – I have done my best with the information Patrick Cattell has given me, though any complaints about accuracy should be directed to me alone.

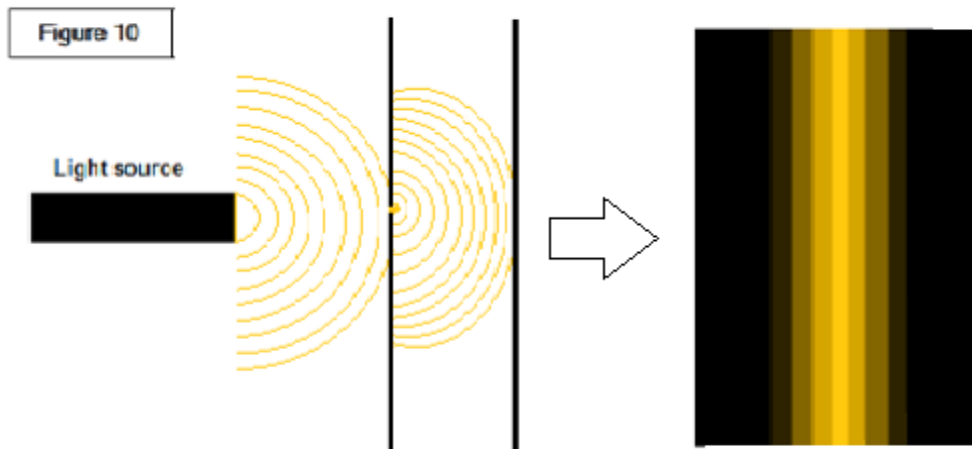
The foundations of quantum physics were actually laid as early as the 17th Century, with the work of Isaac Newton. Although Newton will always be remembered best for his Laws of Motion and his discovery of gravity, he also founded the school of Optics— the study of light. Newton believed that light was comprised of tiny packets of energy called corpuscles. He observed that light travels in straight lines, and so viewing light as comprised of particles made sense. A few years later, though, an opposing theory was developed by Christian Huygens. Rather than viewing light as comprised of tiny packets of energy, he believed that light was made of a wave in a substance called the luminiferous ether. Under Huygens’ model, light spreads out in all directions from its source, like ripples on water when a pebble is dropped. Unfortunately, the predictions made by this model were almost identical to those made by Newton’s, and so it was very hard to validate one or the other.

There was just one small difference in their predictions that left the corpuscular camp triumphant until the 19th century. Imagine shining a source of light onto a black wall with a single slit in it. Behind this wall is another black wall onto which the light projects. The observations should differ significantly depending on whether light behaves as a particle or as a wave. If light is comprised of particles, most should be deflected by the first wall. The only particles which should be allowed through are those which pass through the slit. These lucky few will continue as a single, straight beam of light (Figure 9). On the

second wall, there should be a single, intense strip of light which is produced by this beam of light.



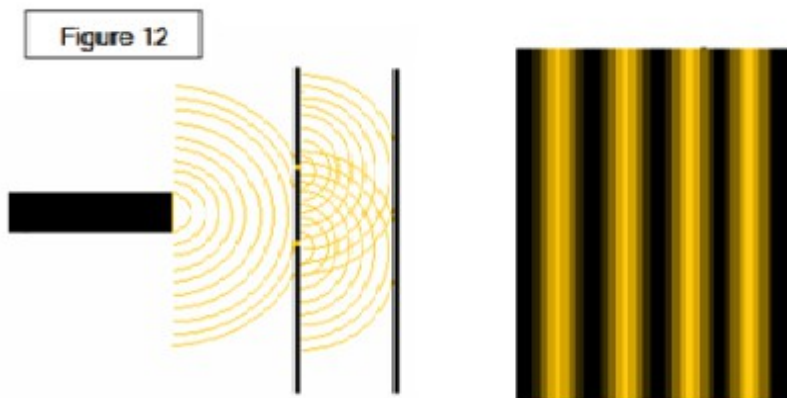
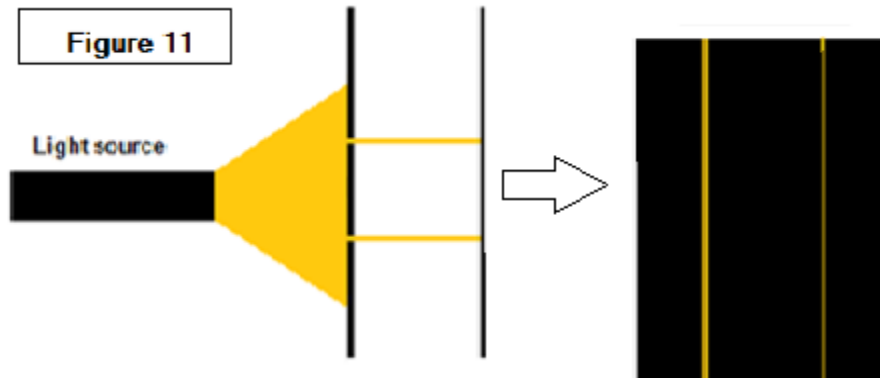
However, if light behaves as a wave, it would be a different story entirely. After the waves of light hit the first wall, a new wave will spread out from the slit as though it were a light-source of its own. This new wave will then propagate towards the second wall (Figure 10). The wave will hit the second wall and a large portion of it will be illuminated. There will be a bright band in the centre and then dimmer bands to the left and right where the wave is weaker.



In the real world, it is the first observation which we see. If you shine a torch through a hole, it is a single beam of light which is seen- not a light gradient. For this reason, Huygens's wave picture of light was almost completely abandoned and the corpuscular theory reigned supreme. That was until a British physicist called Thomas Young performed his famous Double Slit Experiment and turned our understanding of light upside down. It's a wonder the experiment took so long to be devised- the only differentiation from the experiment described above is that there are two slits rather than one! So, what would we expect to see?

If light is taken to be comprised of particles, our observations would be almost identical to those in the experiment with a single slit. The only difference would be that two beams

of light are now allowed through the first wall (Figure 11), and so there would be two bands of light on the back wall. However, a remarkably different pattern emerges if light is taken to be a wave. Each slit produces its own new wave, acting as a light source. However, the two new waves then cross over each other and interfere in their path to the second wall (Figure 12). The image produced will be very different to when there is a single slit, as the two waves can interact. Where a peak meets a trough, they will cancel out. Where a peak meets a peak, a very bright region of light will be produced. This interference causes a pattern of bands separated by darkness; each band not dissimilar to the one seen in Figure 1



Surely this experiment is pointless. We already know that light behaves as a particle from the single slit experiment... right? That's the problem! When the double slit experiment is performed, it is the wave image which is produced! So it seems that, in the single slit experiment, light behaves like a particle. In the double slit experiment, it behaves like a wave. This property of light is described, somewhat banally, as "wave-particle duality". This would be strange enough, but it's just the beginning! Physicists later tried the Double Slit Experiment firing each photon (the smallest quantity of light) through one at a time, removing any chance of photons interfering with each other. Over time, the image produced (assuming we store the image made by each photon and stack them on top of each other) is still an interference pattern- even though there is only one photon passing through at any one time, and so no way for them to interfere with each other!

Sometimes light behaves as a particle, sometimes it behaves as a wave and sometimes it behaves as something different entirely. What a bizarre world! This is perhaps best

summarized in a quote from physicist Sir William Bragg:

"No known theory can be distorted so as to provide even an approximate explanation. There must be some fact of which we are entirely ignorant and whose discovery may revolutionize our views of the relations between waves and ether and matter. For the present we have to work on both theories. On Mondays, Wednesdays, and Fridays we use the wave theory; on Tuesdays, Thursdays, and Saturdays we think in corpuscles."

There was no explanation for the bizarre behaviour of light that could be found in existing theories. That is where quantum physics comes in: to accommodate this strange wave-particle duality. In quantum physics, light is viewed to be comprised of corpuscles- more commonly referred to as "quanta" (which are the smallest units of energy). These quanta travel between two points taking every route possible- at the same time. That means that every quanta of light in the double slit experiment took a loop around the black hole at the centre of our galaxy before it reached the second slit. It also took a loop right around the perimeter of the Universe, and also travelled straight through the first wall as though it were somehow ethereal. It took these paths and every other path both possible and, intuitively, impossible.

This is how an interference pattern can be produced even when the double-slit experiment is performed with one corpuscle at a time: each quanta interferes with itself! The totality of the different paths that a beam of light can take can be referred to as its "wave-function", and can be schematically depicted as just that- a wave. The probability that the particle will be in any one location is called the "amplitude" (just as the height of a wave is called the amplitude), and that is all it can be viewed as- a probability. In itself, the light doesn't have any objective reality – just different probabilities that it will be in different places. Of course, the probability that the light will end up in the Andromeda Galaxy is so minute that we can treat it as negligible. This is also why we don't see a light gradient or interference pattern with a single slit: the amplitude of light going through the solid wall is negligibly small.

What does "end up in" actually mean? It refers to something called "quantum decoherence". In the quantum world, there is no beam of light. Each photon is smeared out across the entire Universe as a wave-function. However, in the classical world- the world at our scale- the beam of light clearly exists in a set position in space at any one moment in time. When something is magnified to the macroscopic scale- whether through observation by a human, or computer detection, or interaction with another particle through one of the four fundamental forces of nature- it undergoes quantum decoherence and the wave function collapses to a single state. The state which it jumps to is random and obeys the probabilistic amplitudes. The inclusion of probability in the world is what upset Albert Einstein and led to his harsh denouncement of quantum theory- "God does not play dice!"

To understand what he meant, consider what we normally mean by random. We might ascribe the term to a dice roll, or a lottery, or the Brownian motion of fluids. However, all of these things are actually pseudorandom. If we knew all of the forces that were applied to a dice, the side on which it landed could be predicted with 100% accuracy. The same goes for the lottery, or even the notoriously unpredictable motion of fluids. This is not the case for the quantum decoherence of a wave-function. It is truly random, and it is fundamentally impossible to know for sure what state something will end up in.

Even more interesting is that this property is not unique to light, or to moving objects.

Rather, anything affected by a “quantum event” (motion being an example) exists in a wave-function. Even the particles in your body! Part of your body’s wave-function is in the centre of a black hole, where it has just teleported to- for no reason whatsoever! Of course, things are being magnified to the classical scale all the time and so, at our scale, almost everything is forced out of its wave function – and always to one of the enormously more likely possibilities. This is called the Copenhagen Interpretation of quantum physics, and it holds that a particle exists in every possible state until it is observed. The black hole part of your wave function is very real, but – when your body undergoes quantum decoherence (as it does all the time, whether by interaction through gravity, or the shining of light, or any interaction with the environment) – the probability that this will become the classically real state is ridiculously tiny, and so that is never what we see. A state as we observe it is not the ultimate form of reality; rather, its reality is its Universe-wide wave function. A world of probability.

In an effort to denounce this viewpoint, Erwin Schrodinger devised his famous thought experiment: Schrodinger’s Cat. The experiment is simple. There is a sealed box containing a cat, a vial of poison, a radioactive atom and a Geiger counter. If the radioactive atom decays, it releases an alpha particle which is detected by the Geiger counter. This causes the vial of poison to shatter, killing the poor cat. It might at first seem that our only problem here is with animal cruelty, but it actually presents a strange paradox. Radioactive decay is an example of a quantum event, and so there is a wave-function as to whether it has decayed or not. We can say that it is in superposition between decay and stability – it has both decayed and not decayed. This means that the poison has both been released and not released, and so that cat has both been killed and not killed! Until the box is opened, quantum decoherence has not occurred outside the box, as neither the radioactive atom nor the cat has interfered with the outside world. The poor cat will literally be both dead and alive, in a superposition between the two states. We can ascribe an amplitude to the cat’s death or survival, but until quantum decoherence occurs, both states are as real as each other!

Would the cat really be dead and alive? Schrodinger didn’t think so, and the purpose of the thought experiment was to ridicule the Copenhagen Interpretation. Does absurdity really prove anything, though? Just because something doesn’t agree with intuition produced by our fallible minds doesn’t mean it should be discarded. Like it or not, most physicists would agree that the cat is both dead and alive until the box is opened. The world is stranger than anyone could have imagined.

So why don’t we see things like this in our everyday lives? Well, there’s a contradiction of terms there – if we saw it, the wave-function would undergo quantum decoherence and we wouldn’t see it! By its very definition, the wave-function of an object cannot be observed. We have a very biased view of reality simply because, in order to obtain it, we have to see things– and seeing them invariably causes quantum decoherence.

The reality served to us by quantum theory is bizarre indeed. Everything exists in a superposition of every possible state at once, and it is only when it is observed and undergoes quantum decoherence that it is forced into the reality that we feel we live in. This may seem an unintelligible world, but it would make no sense to follow in the footsteps of Schrodinger and Einstein and dismiss a theory as experimentally verified of this purely on account of its incredulity or discomfort with our intuition. We must put our intellectual prejudices aside and press on, for it is through the quantum world that the ultimate nature of the Cosmos becomes clear.

Chapter 9

Schrodinger's Fat

The Universe is defined by the Oxford English Dictionary as “all existing matter and space considered as a whole; the Cosmos.” Unlike its definition of consciousness, I have no qualms with this definition- save one small point. The word “existing” implies that the past and future are not part of the Universe. However, special relativity tells us that position in time is relative. I would say that all matter and space considered as a whole including the past and future is a better definition.

The more you think about our knowledge of the Universe, the more humans look like ignoramuses! Even aside from our two inconsistent views about how things interact with each other within the Universe (quantum mechanics and general relativity are inherently incompatible, and a unity of the two is the holy grail of physics), we are almost completely in the dark. What caused the Big Bang? Why is the Universe expanding? Why did the Universe begin when it did? Is there anything outside the Universe? Ultimately, though, we have no idea what the Universe actually is, or what it's made of.

Is the Universe made of anything? Recall the conflict between Absolutism and Relativism that was discussed in Chapter 4. Albert Einstein showed that space and time can be acted upon by mass, which suggests that they have at least some sort of existence as something more than just concepts. I would add the further argument that, since the Universe is generally considered to be bounded, there must be something to distinguish an empty point inside the Universe and an empty point outside. The only difference is that space-time may be found inside, and so it must have a reality of its own. Whatever it is, it is something.

And what is this something? As I have already said, I am neither a mathematician nor a physicist. I am merely an avid thinker with some big questions. Having convinced myself that my realization about consciousness left me no better equipped than a layman to tackle the question before me, I was close to giving up on my quest for a new model of Cosmology when Patrick Cattell had his great insight. If you're standing up, I'd advise you to take a seat before you read the next line. The Universe is made of the Permanence of a larger organism- that is, it's made of fat!

This might sound utterly ridiculous, but quantum physics demonstrates the plausibility of this claim. Recall from the previous chapter that quantum physics is generally applied to things which are very small, as larger objects quickly interact with their environment and undergo quantum decoherence. The brain, which produces consciousness, is large, and so the wave-function quickly collapses. However, Einstein's Theory of Special Relativity tells us that time is a dimension just like the three spatial dimensions. This means that something doesn't have to be tiny spatially for the laws of quantum physics to apply – it can also be extremely ephemeral. There is nothing more ephemeral than a Transience, which exists for the Planck time, and so consciousness can be said to be a quantum event. Just like the decay of the radioactive atom causes Schrodinger's Cat to be superposed as both dead and alive, so does the action of a Transience in calling on a cell of fat from the temporally corresponding region of the Permanence to be used as energy cause that cell to be both burned and unburned. This isn't Schrodinger's Cat; this is Schrodinger's Fat!

The fat is both burned and not burned. We exist inside part of the wave-function of this

fat; the region where the fat has not been burned. This presents us with a piercing question. Why is it that we live in this perfect section of the wave-function, where none of our Cosmic Progenitor's fat has been burned? The answer lies in the "anthropic principle", which points out that all observations of the world have to show a perfect Universe in order for the observers to exist in the first place! If we didn't live in a perfect section of the wave-function, we wouldn't be here to observe it and question its perfection. A wave-function encompasses all possibilities; the amplitude just decreases in amplitude as the states become more unrealistic. However, since we are actually living inside the wave-function, not just the product of its quantum decoherence, no one part is more real than another.

How is it possible to live inside a wave-function? Surely if we did, we would be observing it and causing its collapse! This is not a problem, however, when one remembers that we are ultimately part of the wave-function ourselves, for we are part of the Universe! A wave-function can't cause its own collapse. The only way our Universe could collapse would be if a Transience of the Cosmic Progenitor could somehow be observed (like how Schrodinger's Cat's wave-function collapses when the state of the radioactive atom is observed). The wave-function of the Cosmic Progenitor's fat would then collapse to one state or another; burned or not burned. Almost certainly, the state it would reduce to would not be one in which every cell remains unburned. Fortunately for the Universe, however, a Transience is fundamentally unobservable. Remember that qualia are an integral part of consciousness (see chapter 3), and that they are fundamentally ineffable: they cannot be comprehended by any means other than direct experience. In order to collapse the wave-function, an organism in the world of the Cosmic Progenitor would have to do the impossible. The Universe, it seems, is safe.

Chapter 10

The Evidence for Lipophysics

The last chapter has proved that the theory of a Universe made of crystallized consciousness is plausible. Plausibility on its own, of course, is insufficient proof for a theory. It is plausible that the Universe exists inside the wave-function of another organism's fat, but in order to say with some certainty that it is true, we need to test our theory against observations.

The Universe in which we live has four dimensions- height, width, length and time. Each of these dimensions may be travelled through by any object, but the smallest amount they can travel by is the Planck Length (or, for time, the Planck Time). Contrary to our intuition, the dimensions are considered to be bounded in the conventional view of the Universe- that is, the dimensions have limits. The Universe has a top, a bottom, a beginning and, possibly, an end.

The first obvious benefit of looking at the Universe through Lipophysics is that it allows us to explain the substance of the Universe. Modern physics can offer virtually no answer- the metaphor of a flexible sheet of plastic is often used, but this struggles to co-exist with the seeming vacuity of space. Under Lipophysics, space is part of the wave-function of fat, and a wave-function has substance without interacting with matter within. The edge of the Universe is the edge of the Cosmic Progenitor's fat. Time itself is just the passage of time in the higher Universe the Progenitor occupies.

What's more, we can explain the existence of the Planck scale. Why should it be the case that there is a lower limit to the amount an object can move through a dimension? Why should this amount be the completely arbitrary Planck scale- $1.61619926 \times 10^{-35}$ metres for the spatial dimensions and $5.3910632 \times 10^{-44}$ seconds for time? Contemporary physics can offer no explanation, but it makes perfect sense in Lipophysics – the Planck length is the smallest unit of length in the space-time fabric of the Universe: the diameter (distance across) of a cell of fat in the Cosmic Progenitor. The Planck time is equally easily explained- the smallest unit of time in which the nature of space-time can change: the time taken for a single fat cell to form by mitosis (or whatever alien process is used in the Cosmic Progenitor).

The Universe started with the Big Bang. We know this because galaxies throughout the Universe are “red-shifted”, showing us that they are all moving away from each other (the waves of light that allow us to see them become “stretched” by the motion of the source, shifting them towards the red end of the spectrum), and so must have all been together in the distant past. The Universe is still expanding, at an increasing rate. In fact, the Universe is increasing far faster than physicists' calculations suggest- and this is attributed to the enigmatic force of “dark energy”, which has no proven mechanism. We also have no idea what caused the Big Bang.

Lipophysics, however, allows us to explain the Big Bang perfectly- the Cosmic Progenitor's accumulation of its first fat cell. The expansion of the Universe is simply the Cosmic Progenitor becoming fatter as time goes on. Indeed, this can explain why our calculations about the rate of expansion don't match with our observations- the Universe is not being forced to expand by “dark energy”, or obeying any set rules in its expansion- it's simply an organism accumulating fat. Contrary to theories of Big Crunch or Heat Death, the end of the Universe may simply be the gradual decay of space-time itself

after the death of the organism (if this type of organism dies at all!).

Lipophysics is very similar to another school of thought in Physics- "string theory". Both are attempts to explain the ultimate nature of reality (although string theory is concerned with the contents of the Universe rather than the nature of the Universe itself), and both make claims that are intrinsically untestable. A "string" is too small to ever be observed (in principle, not just in practice), and any observation that could objectively validate Lipophysics would lead to the collapse of the Universe itself. However, both of these theories are remarkably useful for explaining things about the Universe, and there are no observations which seem to argue against them. String theory has been incredibly unpopular amongst some physicists, despite its uncanny utility for explaining how particles behave. Indeed, some professors have even pushed for it to be banned from physics faculties to prevent the corruption of young physicists! However, it cannot be denied that string theory can explain a great deal about how the Universe works. Similarly, Lipophysics – although lacking empirical proof – explains the Cosmos with unprecedented coherence.

In fact, I would argue for an overhaul of the scientific method. Traditionally, science has progressed by making a theory and bombarding it with experimental evidence to try and disprove it. Only the theories which stand are considered to be true. Although this high-powered approach is powerful and certainly eradicates mistruth from our scientific understanding of the world, I can't help but feel subtler methods will be needed as our understanding expands into stranger territory.

Does the Universe have a responsibility to us to keep all of its secrets inherently testable? Of course not! Sooner or later we are bound to reach claims which can neither be proven nor disproven using the conventional scientific methods. We can't just ignore them simply because we can't test them as thoroughly as we like. Beggars can't be choosers, and in the quest for knowledge we are all beggars. Claims like Lipophysics should be judged on their accuracy as a description of the world. Being overly stringent in our definition of proof can only limit our understanding of the Cosmos, and will leave facts about the Universe forever outside our scope of understanding

Chapter 11

Cosmic Progeny

What is the picture of reality presented to us by Lipophysics? Our Universe is a part of the wavefunction of another organism's fat. What this organism is, exactly, we may never know. However, it exists in a higher plane of which our Universe is just a part of a part, and it possesses some kind of consciousness in order for its fat to exist in superposition.

The picture doesn't end there, though. Where does the higher plane of existence in which the Cosmic Progenitor lives come from? The logical conclusion is that it exists in part of the wave-function of a greater Cosmic Progenitor's fat in yet a higher Universe. Each Universe is a manifold of reality; a part within a part within a part in an endless spiral. Or, perhaps, the spiral is not endless, and there is a Super Massive Progenitor in which all of reality resides. I will not venture beyond the credible by trying to tackle this question, for I have no answer. Perhaps the answer will always be beyond us, or perhaps one day it will be found.

The spiral – endless or finite – doesn't only go upwards. The sole condition for an organism to have a Universe in the wave-function of its fat is that it is conscious (since it is the quantum nature of consciousness which puts fat into a wave-function). Not many people would dispute that humans are conscious (Cogito Ergo Sum!), and so is there a Universe within us? In short, yes, but not necessarily as we would recognize the concept of a Universe. Firstly, even for the most obese individual, the Universe within is tiny. There are around 300 billion fat cells in a "morbidly" obese individual, which means that – from the perspective of a hypothetical organism within the Universe- the volume of the Universe would be approximately 300 billion Planck lengths cubed. This seems a huge number: 2.7×10^{1035} cubic Planck lengths! However, the Planck volume is tiny. Were our own Universe to be this many Planck volumes in size, it would only be just over 5 cubic meters- smaller than most rooms. To put this in perspective, the volume of the Universe in which we live is currently around 6.8×10^{1079} cubic meters.

The Universe within each of us is clearly too small to be populated. Furthermore, the Universe within would be far too brief in its existence for life to evolve. A fat cell takes around an hour to divide by mitosis, and the average human lives for around 701265 hours. That means there are only 701265 Planck times in the lifespan of the Universe within, which is roughly 7.01×10^{-36} seconds! The evolution of multi-celled organisms on Earth, by contrast, took around 2.6 billion years. Sadly, it seems there is no life in the wave-function of our fat, and so no other Universes further down.

What is the Cosmic Progenitor- an organism which we know does have a populated internal Universe- like? In fact, it is possible to calculate – roughly – the number of fat cells in the body of our Cosmic Progenitor. All we need to do is take the cubic root of the number of Planck volumes in the Universe, which gives us the value of 1×10^{1085} (1 with 85 zeroes after it) cells of fat. That is more cells of fat than are possessed by every human on Earth combined! Whatever species the Cosmic Progenitor is (and do not seek answers here, for as of yet I have none!), it is huge and has a great deal of fat. Calculating the age of the Cosmic Progenitor at this moment in time is somewhat more difficult, because we don't know how long mitosis for a cell of fat in its body takes. However, if it were to take an hour like in humans (and this is a very tenuous if), the Cosmic Progenitor would be 2.1×10^{1053} years old! Our Cosmic Progenitor is clearly

nothing like a human.

So what does our picture of the Multiverse look like? It's something like a downwards branching tree. At the top there may be a Super Massive Progenitor or, perhaps, just an endless spiral upwards. Every organism with fat (or some comparable long-term store of energy which can be called upon by consciousness) exists as branches coming down. Some of these, like humans, are likely mere twigs- they branch no further, for there are no fat-possessing organisms living within their own fat. However, some – like our Cosmic Progenitor- have branches of their own, where fat-possessing organisms exist within their internal Universes. Are there any Cosmic Progenitors within our Universe? Who can know! Fatercist Gurus are debating this question to this day. Perhaps our Cosmic Progenitor is the Super Massive Progenitor, and the downwards-branching tree has only one level occupied purely by twigs. Or perhaps there is another form of life unfathomable to us at this moment in time which exists in our Universe and would fit the job description of a Cosmic Progenitor.

These questions are at the forefront of Fatercist thought, and – as of yet – there seems to be no real answer. This is a very different worldview to the one presented by conventional physics, and it may be hard to believe. However, this world – a world of branching Universes begotten of each other, existing in part of the quantum wave function of fat – seems to me to be utterly inescapable. The great astronomer Carl Sagan once said: "Somewhere, something incredible is waiting to be known." Now, through the genius of Patrick Cattell and his Theory of Lipophysics, it waits no longer.

Chapter 12

Kung Food: The Omniscient Perspective

The arguments in this book about the nature of the world may seem somewhat fragmented and incoherent. At the beginning, we learned from René Descartes that Existentialism- the belief that the only source of knowledge is the self – is correct. We then proceeded to make conclusions about the world based on observations and the scientific method – abiding by the opposing school of thought, Positivism, which we had disproven! Even our explanation of the self relied on Einstein's Special Theory of Relativity which is ultimately a positivist theory based on the mathematical manipulations of our observations about the world.

Of course, there is no other way to go about studying the world. If all we assume to exist is the self, how can we ever learn anything? The vast swathes of human knowledge accumulated over millennia would be replaced by the single fact that the self exists. Indeed, we couldn't even verify that other people's selves exist- only our own. Clearly, Existentialism is not a practical epistemology by which to study the world. It is the only one which is philosophically rigid, but – in our studies of things outside the self – should we bite the bullet and accept Positivism as well? The self is all that can be said to truly exist, but is it acceptable to use our senses in a makeshift attempt to produce a coherent picture of the world around us?

The philosophical instability of Positivism makes any conclusions made deeply uncertain, and leaves our understanding of the world unstable. How do we know that we aren't a brain in a jar? How do we know that everyone else isn't an automaton without feelings of their own? How do we know that all of our conclusions about the nature of the Universe are not just the result of our senses being duped? Existentialism's answer to all of these questions is: we don't. And yet Positivism is no better, for it is based on assumptions and blind faith in our senses. If we want a truly objective reality outside of ourselves, a new epistemology is needed.

After I had finished devising Fatercism, I spent some time reminiscing about my early days as a thinker – my teenage years spent studying the writings of the great philosophers: Descartes, Plato, Socrates, Aurelius, Epicurus, Confucius and many more. I thought about my days at Oxford, when I was studying neuroscience, and that sense of unease as I accepted knowledge that I knew was obtained by philosophically unsound means. Real beyond reasonable doubt was never good enough for me. I wanted real beyond *any* doubt.

Having completed my worldview, with theories of the Universe and consciousness under my belt, I felt I should try my hand at epistemology. It was at this point that I first met Frederick Pearson, a professional philosopher, to whom I explained my theories. He was intrigued, but – like me – he felt unease with their reliance on Positivism. Together, we set out to glean a new insight into a way to expand the horizons of objective reality beyond the iron curtains of the self.

Before Frederick Pearson and I could devise our own epistemology, we first had to understand the root cause of the problems with those which already existed. Let's assume for a moment that Positivism and Existentialism could both be said to be philosophically sound. What is the difference between a positivist and an existentialist which really makes their viewpoints different? If an existentialist were seeking objective

knowledge about the world, the only way to obtain it would be through introspection. Whether through meditation, or psychological experimentation, or just plain thought, they would seek knowledge inside themselves. By contrast, a positivist doesn't believe that the self can objectively be said to exist. They would discard the self as a valid region of study and, turning to extrospection for answers, would study the world around them through their senses. Of course, Descartes proved that Existentialism is the correct philosophy with his argument "Cogito Ergo Sum". However, does either epistemology really provide a full picture of reality?

Existentialism only looks at the self, and Positivism only looks at everything but the self! The philosophies are mutually exclusive by their nature, for they both view the ultimate source of knowledge to be completely different, and so cannot co-exist. To this end, the current epistemologies only provide a fragmented view of a single segment of reality! The segment of reality which is analysed by Positivism is far larger- everything apart from the self. One might argue that explaining everything apart from the self is a reasonable enough attempt. However, from each of our perspectives, the self is literally at the centre of the Universe. What's more, it is through the self that we make the sensory observations so revered by the positivist. If the measuring device is broken, can we trust the measurements?

Existentialism, though, has an uncomfortably anthropocentric methodology. Through its reliance on introspection, it treats the self as the objective centre of the Universe rather than just a subjective centre. Can we really have a complete understanding of the world around us if all that we know about the world is that which comes from the self? We are a speck on a tiny planet, orbiting an average star with 9 other planets. There are 400 billion stars in our galaxy alone, and countless billions of other galaxies. If one accepts Lipophysics, there may even be infinite universes. Understanding only the self is a rather paltry effort! What's more, Existentialism is at odds with the scientific method – built upon the idea of observations – and, if it is to be followed stringently, we are actually completely in the dark about the world in which we live.

Both schools of thought are deficient. Existentialism has the advantage that it is philosophically sound, but Positivism has the advantage that it describes a far larger portion of the world. If we are to renovate the foundations of our tower of knowledge and ensure its stability, we must devise a new epistemology- a perfect mixture of the existing two, which is both philosophically sound and covers all aspects of reality. We need a method of omnispection. Can introspection and extrospection somehow become one? Could we, through introspection, observe the world around us?

Pearson and I thought about this question long and hard. As is so often the case, the inspiration came to Pearson when he was tackling an entirely different matter. He had been working on his novel, and had a roast chicken in the oven for dinner. Unfortunately, he became preoccupied writing a particularly interesting chapter, and completely forgot about his dinner! He was eventually alerted to his mistake by the smell of charred chicken flesh, and he insists that when he removed the chicken from the oven it crumbled to a pile of ash on the floor. After spending a few minutes cursing his poor memory, Pearson decided that he would go without dinner and continue work on his novel. He was successful for an hour or so, but soon mental fatigue set in as he became hungry. Reluctantly, he ceased work and microwaved a ready-meal plate of lasagne with a side-salad and some garlic bread.

After eating, his creative ruminations were able to resume with newfound impetus. That

was when it came to him. Many readers will know the story of when Archimedes first realized that objects in water caused a displacement which can be used to measure their volume. He leapt from his bath excitedly, screaming “Eureka!” Pearson’s celebrations were somewhat less glamorous- he threw his arms in the air, knocking the table over and getting lasagne all over his white shirt. However, nothing could dampen his mood, and that was when I received the telephone call that put me out of my misery.

Pearson realized that we had been overcomplicating things. We knew that what we needed to do was bring something from the outside in and observe it introspectively. We had spent weeks trying to achieve this using complex methods: quantum entanglement, rewiring of brain circuitry, collective consciousness and manipulating the semantics of “knowledge”, to name but a few. Eventually, we were ready to confine ourselves to epistemic nihilism, and accept that there is always uncertainty when it comes to our understanding of the world. That was until Pearson had the Great Lasagne Insight and conceived of Kung Food.

Sometimes, a realization comes along that is so obvious that you wonder why it took so long to be discovered. An example of this would be evolution by natural selection – it’s a wonder such a simple idea didn’t occur to anyone before Darwin! Another might be Newton’s realization that all objects are attracted to each other by an invisible force. I feel Kung Food, Fatercism’s answer to the Positivism/Existentialism problem, also fits into this category. Bringing something from the outside into the inside sounds very difficult, but it is just a complicated way of describing something extremely simple that we all do every day– eating!

The idea came to Pearson when he realized the intrinsic link between what we eat and what we think. Eating, after all, is an amazing process. It is a conduit between the Universe and the self. Through eating, parts of the Universe become part of the amazing system we call our bodies and can contribute towards the conscious experience. It is the fuel of both the Transiences and the Permanence (see chapter 5), and so makes up all of our consciousness – the Cogito, and the one thing that can be said to exist. So it could be said that there is something deeply sacred about the energy in the food we eat. To quote Frederick Pearson: “Eat a burger today, become it tomorrow.”

Descartes was right to say Cogito Ergo Sum, but it is equally valid to say Consumo Ergo Cogito - I eat, therefore I think! This isn’t the end of it, though. How do we know that the food we eat isn’t just an illusion, and that the energy isn’t actually channelled to us through some other means? This is all very far-fetched, but if we want 100% certainty, such possibilities have to be considered. Just eating something does not prove that it exists. That is why Frederick Pearson and my Buddhist (now a Fatercist convert) friend Heather Marshall devised the system of Kung Food.

The meaning of the phrase “Kung Fu” is one of the most prolific linguistic misconceptions. Almost everyone believes Kung Fu to be a martial art; perhaps a Chinese version of karate. However, this is not true. Kung Fu is Chinese for “hard work”, or “patient accomplishment”. It is a term for anything which takes effort and practise to become good at. Often this term is accurately ascribed to martial arts, but it can just as well be applied to almost anything! At first I was against the term “Kung Food”, believing that it trivializes a very serious matter, but I have since been won over. Kung Food is most definitely a form of Kung Fu. At the date of publication, Heather Marshall is the only Fatercist Guru to have mastered it – and only on account of her years of experience with Buddhist transcendental meditation.

To begin an act of Kung Food, one must first fast for an extended period of time – 24 hours is recommended. The purpose of this is to clear your system and to aggrandize the portion of your thoughts that will be fuelled by the food you are going to be conjoining to your being. It also serves to help you focus on the food by increasing the tenacity of its blandishment. The particular food that you will be studying can be anything, although it should ideally be something calorific such as deep fried food – again, to maximize its composition of your thoughts. However, it should first and foremost be something that you find appetising and will be utterly enthralled by.

You must then sit in a comfortable position with the food upon your lap, and focus all of your consciousness on it. Feel the sensory information from the food pour into your being – the noise of it sizzling where it is still hot; the tantalizing aroma seducing your olfactory senses; the oh-so appealing sight of it. You must then complete your positivistic study of the food by eating it. Direct every fibre of your being towards focusing on its taste; the world outside should be annulled to your being, and – in the moment when you and the food become one – you should be the sole occupants of the Cosmos. Having eaten the food, you must enter a deep state of transcendental meditation. As the Buddhists have done for millennia, block out the entire world around you; enter your own bubble. Forget the light bouncing off your shoulders; forget the air you are breathing; forget the Earth that is keeping you grounded. You must become a Universe in and of yourself; completely idempotent of the world around you.

You will then have a period of about 50 hours, while your food is digesting, in which you must remain completely undistracted from your meditation. You must feel the entire process of the energy from the food being released from its corporeal bonds and becoming one with your consciousness. Only then can you truly come to know that the food you have eaten exists, just as you know that you exist. The more sceptical reader may argue that this does not prove that anything else in the Universe exists- just the food that you performed Kung Food with. However, everything in the Universe is connected. We were all once together as a singularity (or, rather, a single cell of fat) at the Big Bang, and are part of the same entity. If you were cooking a stew, you would not need to taste all of it to know that it is good – just a single spoonful. Similarly, we only need to bond ourselves with a single part of the Universe to know that the Universe as a whole is real.

Kung Food is hard, and as I said the only Fatercist Guru to have achieved mastery at the date of publication is Heather Marshall. This puts her in a rather elevated position – the first human to ever know for sure that the Universe exists! However, we can't rely on her mastery to sate our own esurience for certainty. Kung Food has subjectivity at its very nature. It relies on observation of the self, which includes qualia, and qualia – by their very definition – are ineffable. If we are to personally become enlightened and eschew any possibility that we are being duped by our senses, we must each master Kung Food for ourselves. Only then can our fragmented understanding of the Universe be construed into a coherent picture.

Chapter 13

On the Trail of the Stoics

The philosopher Francis Bacon once said “Ipsa scientia potestas est”, which roughly means “Knowledge is power”. What an astute observation! I hope that the reader will agree that, so far, a great deal of understanding has been reached. But what can we do with this knowledge? Is it just useless information; the musings of philosophers with nothing better to do with their time? Or does it have a genuine use?

I firmly believe that all knowledge has a use. Knowing the nature of the self or the Universe, although without direct applications in the present day, will undeniably be of great benefit to humanity in the future. However, is there a more direct application that can be found for all of these realizations? Can they be made into a religion; a way of life that improves the livelihood of its followers?

The world is in a state of great strife. War and crime abounds. Inequality and greed scars the lives of the many and aids in the continuing proliferation of poverty. For all of science’s great strides, mental and physical illness persists in its degradation of human lives. In our increasingly materialistic world, fewer and fewer of us feel fulfilled. I realized that I had a moral responsibility to use my newfound understanding of the world to devise a solution to at least some of our problems.

Before we can cure humanity of its problems, we must first perform a diagnosis. Throughout history, people have tried to identify the root of all evil and suffering. It is generally agreed that there are two forms of evil: natural evil, such as earthquakes, and moral evil, that results from human actions. Curing natural evil is clearly the domain of science and technology, and they are doing a good job of it. A cure for moral evil, though, is – at least at present – firmly within the domain of philosophy and religion.

Trying to identify the source of moral evil is a task that has been attempted throughout the ages. Perhaps the most well-known thesis is the Biblical claim found in the Book of Timothy: “Money is the root of all kinds of evil”. Money certainly has the potential to cause a lot of evil, but it doesn’t live up to the claim made by the frequent misquote – the root of all evil. Money may seem to be the root of an awful lot of evil such as theft, but the root of this evil isn’t money itself- it is human avarice. Furthermore, a lot of evil is completely unrelated to money – murder inspired by anger, for example.

A far better case for the origins of evil came from a group of Athenian philosophers called Stoics, although Stoicism was later propagated throughout the Roman Empire. The Stoics argued that evil stems from human emotions. Whether anger, or avarice, or envy, all moral evil can be linked to a destructive human emotion. Roman Emperor Marcus Aurelius, often considered to be the last Stoic, put this very astutely: “If you are distressed by anything external, the pain is not due to the thing itself, but to your estimate of it; and this you have the power to revoke at any moment.” It is not our experiences that cause us to do bad things – it is the emotions that they fuel.

Stoicism is successful in performing a diagnosis. However- at least to my mind- Stoicism falls when it attempts to provide a cure. The Stoics argued that the way to avoid moral evil was through abstinence from worldly pleasures to get rid of passionate emotions. However, their system clearly failed. Marcus Aurelius, for instance, was famed for his savage persecution of Christians, and the Roman Empire could hardly be described as

free from moral evil! What was wrong with the Stoic method?

The real issue is their confusion of destructive emotions and passionate emotions. Passions are not all evil – one can be passionately sympathetic, for example. In seeking to exorcize themselves of all passionate emotions, they also cast out many emotions which can lead to good. To end humanity's ills, we need to seek the root of all destructive emotions. Therein lays the cure to all strife.

Chapter 14

The Root of All Evil

The Root of All Evil In Chapter 5, we discovered that we are comprised of two parts- a multitude of Transiences, which are snapshots of consciousness, and a Permanence, which is the 4-dimensional manifold of our fat in space-time. These are linked by the ability of fat to be converted to energy and later to our thoughts- a Transience. Later, in Chapter 8, we learned that our fat is a (tiny) Universe in itself. The Permanence has something of a noose around the neck of the Transiences – it can convert itself to energy and invade one at any moment, assuming complete control of our thoughts. Could the Permanence be the root of all of our destructive emotions? And if so, why would it do this? To find answers, we will have to do nothing less than empathize with a Universe!

Our Permanence, as Universes go, is somewhat exiguous. In Chapter 10, we calculated that – to a hypothetical organism living inside- our internal Universe would be 5 cubic meters in volume and would last for a mere 0.00000000000000000000000000000000701 seconds. Imagine how frustrating this would be- to know that you are a Universe, and yet that you are so insignificant! It makes sense to suggest that our Permanence suffers from something of a Napoleon Complex. It feels small and insignificant, and – angry at the Transiences for not enlarging it as much as possible – it inflicts them with destructive emotions. There is a Great Discord within all of this. The way to stop this is to placate our Permanence by making it as large as possible.

When considering the size of a Permanence, we must incorporate both the spatial and temporal dimensions. Remember from Chapter 4 that time is just a dimension like any other. This means that, when assessing the stature of a Universe, we should calculate its 4-dimensional volume. How would we go about that? Well, to calculate the “volume” (of course, we call it “length”, but the principle remains) of a 1-dimensional object, we simply take the length of its single dimension. To calculate the “volume” (area- but again, the same principle!) of a 2-dimensional object, we multiply the lengths of its two dimensions together. To calculate the volume of a 3-dimensional object, we multiply the lengths of its 3 dimensions together. And so, to calculate the volume of a 4-dimensional object, we should multiply all 4 of its dimensions together.

I call this value which can be calculated for Permanence its Cosmic Significance. Since the volume of our fat is constantly changing throughout our lives, and our fat does not exist in a regular shape, we can calculate the Cosmic Significance of our Permanence using the perturbative measure below: Cosmic Significance = Average Volume of Fat (over entire life-time) x Length of Life. However, measuring fat as a volume is extremely difficult. We can conserve proportionality by replacing it with mass of fat, so our equation becomes: Cosmic Significance = Average Mass of Fat (over entire life-time) x Length of Life.

Do we strive to maximize this value throughout our lives? Of course not! We spend our lives signing up to vile institutions such as Weight Watchers. We exercise; we try to eat “healthily”; we persecute fatty foods like lard and butter. The reason for the prevalence of destructive emotions throughout humanity today is the discord between our Permanence, which wants to be as large as possible, and our Transiences, which cruelly restrict its size! This is the root of all evil.

Many people would argue that minimizing the amount of fat that we have in our bodies is the best option, since it increases estimated life-span – length in the temporal dimension. However, this is untrue. Having more than 100 pounds of “excess” fat decreases life-expectancy, on average, by 7 years. This is a factor of 0.9125, assuming that the person would have lived to the age of 80 at a healthy weight. However, if we assume that the “healthy weight” of that individual (which changes according to height, age and gender) is 10 stone (with a 20% fat percentage), they will have increased the mass of their fat by a factor of 3.57! This gives a ratio of 1 : 3.91, showing that it increases the Cosmic Significance of our Permanence by a factor of 3.91 to have 100 pounds of “excess” fat. Indeed, it would be beneficial to continue gaining fat until the ratio becomes less than 1:1. There is insufficient medical data to give a conclusive answer as to when this is, but I suspect that the cut-off point is not realistically attainable – that is, we should simply aim to be as fat as possible. After all, the fattest man at the date of publication was Jon Brower Minnoch, who was thought to have weighed over 1400 pounds and lived to the age of 42. This means that his lifespan was decreased by a factor of at most 0.5, but the mass of his fat increased by a factor of roughly 40! He enlarged his Cosmic Significance by a factor of 20 – an incredible feat.

Becoming as fat as possible, it seems, is the way to go if we are to maximize the Cosmic Significance of our Permanence and, in doing so, placate it. However, becoming as fat as possible is not the only thing we have to do to placate our Permanence. Decreasing the length of our lives through means that do not increase the amount of fat in our bodies can wreak havoc upon our Permanence’s Cosmic Significance. Smoking, for instance, knocks years off a person’s life without increasing the size of their Permanence in space. A Fatercist should strive to maximize the length of their life in all ways other than those which minimize the amount of fat on their bodies. Many may fear that the quality of life of a Fatercist would be degraded by endless fear of obesity-related health problems. On this matter, a quote from Sophocles is extremely useful: “Tomorrow is tomorrow. Future cares have future cares. And we must live today.” Live in the present; don’t worry about what will happen tomorrow.

The diagnosis was completed by the Hellenic philosophers who developed Stoicism, and now our prescription is ready. If we’re going to cure humanity, we all need to put an end to the Great Discord and placate our Permanences.

Chapter 15

Placating the Permanence

Stoics tried to rid themselves of destructive emotions through the use of “askēsis”, which were complicated pieces of logic. Fortunately, Fatercists just have to get fat! However, this is harder than it sounds. To placate your Permanence, you need to aim to be as fat as possible; to declare an armistice between the segments of your being. This is a fairly tall order, and – aside from a small number of individuals– very few people have achieved this.

The most obvious method of placating your Permanence is through a high-calorie diet. It is a common misconception that the fat we eat is deposited as fat in our bodies. Fat from our diet is actually broken down into glucose and mainly used as energy for life processes, like carbohydrates. However, the production of fat is controlled by calorie intake, and fat is the most calorific of food types – with 9 calories per gram (more than double that of carbohydrates!) We feel full on account of how much food we have eaten, not on account of the number of calories. For this reason, we should only eat foods which are very high-calorie in order to maximize our weight gain. Foods like carbohydrates and proteins are also acceptable in reasonable amounts, but it is asking for trouble to eat foods like celery which actually take more calories to digest than they contain.

Of course, it is not our gross caloric intake that affects the amount of fat produced in the body- it is the net amount of calories left over. Most of our calories are burned through life processes such as breathing and homeostasis, but through a good Fatercist diet it is possible to have a high net caloric intake. It is important, however, that we do not reduce this through unnecessary exercise. Some exercise such as walking is unavoidable (although can be minimized), but acts such as going to the gym or playing sports serve to aggravate the Permanence. This is not just idiotic; it's selfish and immoral, because we are endangering others by fuelling our destructive emotions.

Fatercist Guru John Macbeth, a medical doctor, has devised a set of rules by which one can successfully placate their Permanence. We call them, humorously, the Ten Suggestions. Of course, one would not be expected to comply with the dietary suggestions in their preparatory 24-hours before an act of Kung Food.

- 1) Binge eat rather than eating regular snacks, for it will slow your metabolism and allow you to eat more before you feel full.
- 2) Avoid low-calorie foods such as celery and instead strive to eat fatty foods, for therein lies the calories that will allow you to attain obesity.
- 3) Drink sugary drinks such as fruit juice and soda, for they contain many calories but will not leave you feeling full.
- 4) Maintain a varied diet, so that you enjoy your food more and so can eat more in the long run.
- 5) Eat with a more experienced Fatercist than yourself, so that you can be spurred on to eat even more.
- 6) Befriend the obese, so that you feel happier about your weight gain in an increasingly

anti-obesity world.

7) Aim to keep warm at all times, to save calories being spent on maintaining your body temperature.

8) Avoid exercise except where it is absolutely necessary.

9) Do not watch sport, for it funds the methodical burning of calories.

10) Avoid vile institutions such as Weight Watchers which encourage you to lose weight and damage your self-esteem.

It is not necessary for an individual to actually make their Permanence as large as is possible in order to placate it. After all, it is impossible to know all eventualities, and everyone makes mistakes from time to time. It is the thought that counts, and good intentions are enough to placate the Permanence. It seems bizarre that gluttony and slothfulness is the way to destroy evil, but I hope that the reader will agree that it has been proven beyond doubt by the arguments made in the preceding chapters. If everyone were to become a Fatercist and follow these tenets, imagine what the world would be like!

We are living in the Epoch of Discord. Life is dominated by destructive emotions which result from the conflict between Permanences and Transiences. Each individual has the power to become a Puddha and free themselves from these emotions, but moral evil will remain in the world until every last person placates their Permanence through a striving towards obesity. The Epoch of Harmony would begin, and humanity's darker nature would be cast into nothingness. What a world we would have if this were to happen!

Moral evil would exist no longer, for we would be freed of our destructive emotions. Anger; sadness; fear; guilt; despair; envy; avarice; selfishness – all would exist no more. Mental illness would be exterminated once and for all, for the Permanences would use their link to our thoughts to adjust the workings of our brain and make any necessary adjustments. There would be no crime or poverty, for humans would unite as one and work towards creating Utopia. And a mighty Utopia we shall build!

No-one in their right mind would oppose the building of such a society. However, if it is to be brought into existence, we first need a cultural revolution

Chapter 16

The Cultural Revolution

There is something deep and profound about eating. All of our senses can be seduced by tantalizing stimuli, but there is something about the sense of taste that places it above all the others. Can you imagine someone being as excited about stimuli for a touch, sight, sound or smell as for an upcoming meal? This does not come from a greater transfer of information – the information transferred by sight is by far greater than that transferred by any other sense. Taste is unexceptional as a sensation, but as a perception it becomes the most intimate qualia.

The force behind the poignancy of taste is, undoubtedly, the Permanence. Although the Permanence is ultimately the root of all evil, it is not evil in and of itself. It just wants to be big, and our culture constantly tries to rip its dream from its blubbery fingertips. The Permanence doesn't begin by filling our hearts with destructive emotions. First and foremost it fills us with a deep yearning for calories. We are all drawn to calorific foods from the day we are born. We are all lethargic and seek to avoid exercise. If we would just accept the primary natures installed in us by our Permanences (though also by our evolutionary heritage), we would be rid of all evil!

Our culture, though, does not allow this. It seeks to set our lives awry at every opportunity. Skinny models are used to make skinniness the norm. Dogmatic emphasis is placed on the importance of longevity over quality of life, and medical institutions exaggerate the effects obesity has on health. Fatty foods are demonized and taxed, and exercise and sport are worshipped and exalted. If we continue in this way, Utopia will be a long time coming.

Fatercism offers an escape from this. We propose a cultural revolution. Skinny models should be replaced with models who, today, would be considered morbidly obese. The public should be educated about placating the Permanence, so that they realize that obesity is the path to enlightenment. Kung Food should be taught in schools, so that people can master it early in their lives and achieve a rigid philosophical basis for all their knowledge. "Healthy" foods such as celery should be taxed, and non-recreational exercise should be banned outright.

This may seem draconian and authoritarian, but is it any worse than the anti-obesity propaganda currently imposed upon us by the oligarchs? All we are advocating are measures to eradicate moral evil from the world. Sometimes the end justifies the means, and the eradication of evil is as noble a goal as any. It's time to make the change and bring about the world that we and our forebears have yearned for.

Chapter 17

Conclusion: A Seed of Knowledge

Great insight does not come from an exceptional talent for finding answers. It comes from the ability to ask the right questions. A question is like a seed. It might not grow into answers, but more often than not it will grow into more questions. These may sprout their own questions, and before long an entire tree of inquiry will have grown. If even a single question leads to an answer- if but one branch touches upon a bubble of wisdom and has the keenness to burst it- the thick, fluid of realization can seep down to the roots of the tree, purging it of reserve and fuelling its transformation. It will no longer be a Tree of Inquiry; it will be a Tree of Knowledge.

Through this process, each and every question stores within it the potential to unlock far more knowledge than lies within the original catechism. A question is a powerful thing. With nurture, thorough pruning and a liberal dose of the ultimate fertilizer – curiosity - the humblest sapling can mature into the mightiest of trees. Not all will make it, but those that do are hard to miss. Unyielding in their stubborn resistance to the winds that seek to cast them down; unfurled in their crusade against the barrier between the known and the unknown. These trees provide the materials through which we can build upon humanity's Tower of Knowledge about the world in which we find ourselves.

Humanity's history is a story of propensity towards enlightenment and our species' intellectual apotheosis. Each generation has added their layer of knowledge to those of their forebears. Some ages have been more productive than others, and some layers have later proven unstable, but the tower itself has never been toppled. We are yet to reach the heavens and the knowledge hidden within, but we have come from humble beginnings and our progress has been formidable. Now, at the dawn of the millennium, we have begun to slow down. At these great heights, knowledge with which to continue our Gnostic construction is in short supply. There are many promising saplings, and some trees which are nearing the time of their harvest, but it has been too long since the last truly groundbreaking layer was built. Those who hunger for wisdom wait with bated breath. The new revolution is long overdue.

This is not what Fatercism purports to be. It requires much growth and pruning before it can even be considered for use as an epistemic building material to set in stone as fact. We do not claim to be certain that we are headed in the right direction with this philosophy; only that it is a promising alley down which no mind has ventured before. We hope that, through the work of the philosophers and scientists of tomorrow, Fatercism might one day be one of the defining materials used in the construction not only of the next layer of the Tower of Knowledge but also of Utopia.

Time will tell if our hopes will be realized.

Chapter 18

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