

Chapter 58

Memories are Made of This

I don't very often have *Weetabix* for my breakfast but I did this morning. It always reminds me of when I lived in a little bed-sit in London in the 1970s (went there with my guitar to become a rock star, haha), I had *Weetabix* for breakfast every day, provided as part of my 'digs'. Sometimes the things which remind us most of times and places gone by are things that we only experience occasionally.

Later the same day:

I'm out on the street painting a window at the moment (at least my wife thinks I am) and all around is silent. Although I am consciously thinking about filler, sandpaper and dimensions, suddenly I become



Robin Trower
Still givin' it that...

aware of a very loud Ian Gillan in my head screaming out the lyrics to Deep Purple's *Speed King*^a: "*Saturday night and I just got paid, gonna have a party, ain't gonna save...*" (actually that's wrong, but it's what I heard). Why? Because when I'm decorating I often listen to the old stuff...Zeppelin, Free, Sabbath, Trower... and (never having mastered the iPod) annoy the neighbours with my 'ghetto-blaster', which incidentally is not so easy to do these days – an old lady hobbled by me on sticks a little while back and said, "*Ooh, I like Bad Company.*" (This town can be strange but I'm pretty sure she meant the band.^b)

So what is my mind doing in both these instances? Wandering... yes, but not deliberately reminiscing. Psychologists tell us that we store patterns and arrangements of elements, recognising them when they appear and rearranging them into new combinations. The brain, as the human body's most intricate organ, is the most complex thing in the known universe. Our conventional understanding is that it acts like a biological mega-database, collecting, collating and storing vast quantities of information to retrieve as and when required – which puts me in mind of the brilliant 2015 Disney/Pixar film *Inside Out*, where memories represented by variously coloured balls are stored in racks by all the little *Numskull*^c people and thrown to the trash when no longer accessed.

The brain's operating capacity has been compared to a computer hard drive of around 2.5 petabytes (2.5 million gig) but, although popular, computer comparisons are considered unhelpful by psychologists because the brain does not work like a computer in the first place, as pointed out on the website of *Scientific American*^d:

'In the brain, 1 neuron can connect to 10,000 others across the other side of the brain. Trying to simulate that in present hardware would overuse the computer bus, and it would spend practically all the time waiting for data to arrive rather than computing.'

But we humans are inclined to project what we know onto what we don't (it's part of how we figure things out). And I suspect that whether it's computers, plumbing, or the internet – we will always be heavily influenced by the metaphor of the day^e.

^a Blackmore, Gillan, Glover, Lord & Paice, from the 1970 album, *Deep Purple in Rock*

^b Honestly that happened.

^c As per *The Numskulls*, launched in 1962 in the UK comic, *The Beezer*. DC Thomson, Dundee, Scotland

^d <http://www.scientificamerican.com/article.cfm?id=computers-vs-brains> (load comments) - Accessed 28th Jan 2017

^e In *The Computational Metaphor*, from *This Idea Must Die*, (Edited by John Brockman, Harper Perennial 2015), P295, Rodney A Brooks of MIT lists brain metaphors which have historically followed the cutting edge technology of the day, such as fluid, clocks, telephone networks, computer hardware (with software as the mind), culminating in today's World Wide Web. In *The*

The Land of Grey and Pink

In today's world, science of the mind goes hand in glove with science of the brain. With the introduction of objective techniques into a notoriously subjective area, traditional investigation into all the dark perplexities of human nature has now developed into an exciting and promising field which has come on in leaps and bounds over recent decades by the use of electrodes and machines to *measure* things. No longer is it necessary for the pioneers of medicine to pay shifty Edinburgh men for the means of enlightenment. Today even our magazines are filled with colour pictures of the living brain, recorded by at least three different types of scanner which build up 2D slices into precision 3D brain images revealing blood flow, neural activity etc. These are extremely useful for diagnosis and treatment, aiding medical research into many debilitating conditions such as strokes and dementia.

However, the unfortunate impression is sometimes given to the layman that pinning down a particular mental process to a precise area of brain activity that accompanies it somehow *explains* the phenomenon. In reality brain function explains very little, because measuring a thing and explaining it are two very different skills (the postman may know where you live, but does he know *you?*), and unless you believe with at least one UK *New Scientist* contributor that you are nothing more than '*a collective property of the neurons in your brain*'^a, a diagram of the inside of your head is unlikely to be sufficient to define you as a person. But things are changing. In his book, *Pieces of Light*, Dr Charles Fernyhough of Durham University gives us an insight into the modern psychological understanding of memory. He writes,

'As a psychology undergraduate in the late 1980s, I was interested in those details of mind and behaviour that would submit themselves to formal analysis... I wanted to get scientific about hard numbers (which I thought, at the time, was the only way of getting scientific), and all memory seemed to offer me was personal stories.'^b

He goes on to say that those stories are now precisely the qualities which appeal to him most, because the autobiographical memory '*gives the richest illustration of the complex ways in which human beings make sense of their own existence.*'

The Mind, the Mind

The thing is, it is very difficult to *be* something and study it at the same time – a fact confirmed by the heavy weather the early psychologists made of the psyche and accounting in no small part for their modern counterparts' love of technology. Take poor old Sigmund Freud for example: once revered as the 'father of psychoanalysis', for decades his views carried great authority – or, as my teenage son who is currently studying psychology put it last night, "*and then Freud came along and he was all like, 'the mind, the mind'*".

Kendra Cherry, psychology guide for *About.com* writes,

'In 2001, Time Magazine referred to Freud as one of the most important thinkers of the last century.'

And yet today he appears somewhat sidelined, with many of his fundamental ideas either challenged or reversed. She continues,

Grand Analogy from P278 of the same anthology, David Gelernter, computer scientist at Yale explains the inadequacy of the computer metaphor.

^a *New Scientist*, *I am the One and Only*, Graham Lawton, 23rd Feb 2013

^b Charles Fernyhough, *Pieces of Light*, Profile Books 2013, P8-9

‘A 2006 Newsweek article called him “history’s most debunked doctor.”’^a

Ooh, harsh! At least they didn’t maintain (as some do) that he was part of an alien conspiracy! The science of consciousness has always enjoyed a restless outing on the sea of human enquiry. Our range of experience, thinking styles and emotion is virtually infinite, and there are now over seven billion of us! Judging by the flourishing popularity of college courses and popular magazines, psychology is becoming increasingly significant in today’s world, yet it remains a difficult and paradoxically subjective science^b.

Earlier in the book we looked at how a dweller in Flatland might experience perception. By removing two of the dimensions from our experience of the world we were able to simplify to the point where we could visualise his experience of the flow of time as it emanates from his point-event, rippling out to form his 2D ‘block universe’^c. From this was derived a dimensional mechanism – which, when shifted up by two dimensions, I named the ‘central viewpoint triad’^d – by which he might overview that completed stacking. Now let’s take a closer look at how that process might pan out in the real world, particularly as it relates to memory and creativity, and compare it to current thinking in psychology.

Reflection... Neuro-psychology uses study and experiment in the effort to piece together how memory and consciousness work. By means of geometrical analogy, a *Flatland*-based Dimensionality introduces *a priori* structure. Perhaps, in time, these approaches might be combined.

Soft Drive, or Dimensional Interface?

Charles Fernyhough tells how modern psychology is moving away from a fixed, deterministic approach to the brain,

‘Autobiographical memories are not possessions that you either have or do not have. They are mental constructions, created in the present moment, according to the demands of the present.’^e

However it continues to be assumed, not unreasonably, that memories *must* be stored somewhere.

‘Our thinking relies on short-term and long-term storage of information.’^f

‘...the details of an episode must be encoded, stored, labelled and eventually retrieved.’^g

Memory researchers call this the ‘engram’. The *Wikipedia* article begins,

‘Engrams are theorized to be means by which memories are stored... The existence of engrams is posited by some scientific theories to explain the persistence of memory and how memories are stored in the brain. The existence of neurologically defined engrams is not

^a http://psychology.about.com/od/sigmundfreud/p/sigmund_freud.htm - Accessed 23rd Jan 2016

^b Feynman called the social sciences pseudo-science on the grounds that the data is so complex that contradictory conclusions were often drawn from insufficient evidence. To be fair, physicists are now doing the same, of which I doubt Feynman would have approved!

^c *The Magic Treadmill Principle*: Time, as the *n*th Dimension in an *n*Dimensional space-time, issues forth perpendicularly and radially from within the frame of reference of each space-time event. To the observer this *n*th Dimension appears 0-Dimensional (is viewed ‘point-on’) and is therefore invisible, but results in (*n*-1)Dimensional change, and stacking of the (*n*-1)D surface into the *n*th Dimension, taking the form of the past.

^d See Chapters 45 and 46

^e Charles Fernyhough, *Pieces of Light*, Profile Books 2013, P6

^f *Ibid.*, P5

^g *Ibid.*, P9

significantly disputed, though their exact mechanism and location has been a focus of persistent research for many decades.’^a

Nearly seven decades actually, since US psychologist Karl S Lashley’s original 1950 *In search of the engram*. He found that the engram ‘*could not exist in any specific part of the rat’s brain, but that memory was widely distributed throughout the cortex.*’^b

However, ignoring the lack of evidence, in a recent article on memory capacity *Scientific American*^c summarise their take,

‘The brain’s exact storage capacity for memories is difficult to calculate. First, we do not know how to measure the size of a memory. Second, certain memories involve more details and thus take up more space; other memories are forgotten and thus free up space. Additionally, some information is just not worth remembering in the first place.’

I think they’ve been watching *Inside Out!* On closer inspection, these dogmatically stated ideas seem to involve a triple assumption:

- a) that memories may be forgotten at all,
- b) that memories take up ‘space’, and
- c) that space, once taken up, may be ‘freed up’

Clearly none of these statements may be definitively proved because:

- a) you may suddenly remember at 59 something that happened when you were 4,
- b) scientists have persistently tried yet failed to uncover a physiology of memory storage^d, and
- c) (see b)

Much is known about brain function and areas of electrical activity, with repeated recollection now believed to strengthen neural pathways (synaptic plasticity) – but the fact is, how all that blood, oxygen and rubbery grey stuff actually generates the mind itself remains an unsolved enigma.

Physicist Martin Rees observes,

‘The brain is an assemblage of cells, and a painting is an assemblage of chemical pigment.’^e

This simple yet powerful analogy reminds us that, although he clearly describes all that a painting physically is, to suggest that is *all* the picture is would render it of no more use than to (in the immortal words of the *10cc* classic *I’m Not In Love*) ‘*hide a nasty stain that’s lying there*’. What we ‘see in’ or ‘take from’ a picture happens on a level which is informationally higher than the painting’s physical constituents.

And so it must also be with the brain. But where is our science looking?

US science writer and AI guru John McCarthy spilled the beans,

“Neuroscience has no idea – none – of how a mind rises like a genie from the fleshy human brain. It supposes, however, that the magic trick’s spoiler will turn out to reside in physics and chemistry of brain cells. That is the discipline’s fundamental assumption. Nowhere else can the mystery be hiding.”^f

^a [https://en.wikipedia.org/wiki/Engram_\(neuropsychology\)](https://en.wikipedia.org/wiki/Engram_(neuropsychology)) - Accessed 13th June 2017

^b Ibid.

^c <http://www.scientificamerican.com/article.cfm?id=what-is-the-memory-capacity> - Accessed 5th May 2016

^d [https://en.wikipedia.org/wiki/Engram_\(neuropsychology\)](https://en.wikipedia.org/wiki/Engram_(neuropsychology)) - Accessed 13th June 2017

^e Martin Rees, *We’ll Never Hit Barriers to Scientific Understanding*, from *This Idea Must Die*, Edited by John Brockman, Harper Perennial 2015, P168

^f <http://blogs.scientificamerican.com/mind-guest-blog/2013/05/09/human-brain-cells-alive-in-mouse-brains> - Accessed 5th May 2016

So, do we place our unswerving faith in the ‘*fundamental assumption*’ of a neuroscience that ‘*has no idea*’, or might we be willing to consider the implications of the dimensional paradigm, which indicates that *the brain may not be a storage facility at all, but a dimensional interface*? The thing is, the dimensional structure has no need to store memories in our heads in the first place because – by dint of having occurred – *events are already stored in the 4th Dimension*, or block universe, which we all share for the duration of a lifetime.

All our heads have to do, by looking down dimensionally from above, is access them.

Reflection... I do not believe it necessary to make the distinction at this point between long and short term memory because we are only looking at the question of where the brain derives its source material. Also, both models – ‘soft drive’ *storage* and ‘dimensional interface’ *scanning* – would require to be processed by the aid of some form of retrieval and combinatory system such as synaptic plasticity, which would render plasticity of itself ineffectual as a guide to which model applies.

Flatland Revisited

As I go on to describe how this might play out within the dimensional paradigm, please allow me to begin by recapping some of the principles, ideas and logical progressions that have led us to this point because – as I have stressed throughout the book – our investigation is not based on idle speculation, but the solidly consistent principles of *Flatland*...

From the start I have taken as a foundational axiom the idea that geometrical relationships between all adjacent dimensions are the same, referring to it as the *Principle of Relationship*^a, which has enabled us to derive the dimensional structure by extrapolation. (This is in contrast to the approach of String theory wherein dimensions are allowed to be grouped into different types^b in order to explain how the world *appears* to be.) Derived from EA Abbott’s *Flatland*, our principles are very simple – it’s plugging in reality that gets tricky!

In Chapter 11 we applied this axiom to time, arriving at a mechanism for a fourth dimension which does not conflict with the principles as applied to the three spatial dimensions which precede it. The *Magic Treadmill Principle*^c thus derived explains time’s invisibility and describes it’s unidirectionality^d. To achieve this, several if not all of our other *Flatland*-derived principles are involved, particularly *Stacking*^e, *Character*^f, *Cross-Sections*^g, *Viewpoints*^a, the ‘*Edge-On*’ *Principle*^b, and the *Role of Time Principle*^c.

^a *The Principle of Relationship*: Whatever is true of the relationship between two adjacent dimensions is true of the relationship between *any* two adjacent dimensions.

^b Three spatially extended, one temporal, the rest spatial but ‘rolled up’ at the Planck scale.

^c *The Magic Treadmill Principle*: Time, as the *n*th Dimension in an *n*Dimensional space-time, issues forth perpendicularly and radially from within the frame of reference of each space-time event. To the observer this *n*th Dimension appears 0-Dimensional (is viewed ‘point-on’) and is therefore invisible, but results in (*n*-1)Dimensional change, and stacking of the (*n*-1)D surface into the *n*th Dimension, taking the form of the past.

^d To *explain* time’s unidirectionality would involve the question of entropy. Roger Penrose tackles this difficult subject in several of his books, e.g. *Cycles of Time*, Vintage 2011.

^e *The Principle of Stacking*: Each dimension is composed of an indefinitely high number of cross-sections (slices) of the dimension below, stacked together and fused into a single entity.

^f *The Principle of Character*: Once the stacking of a dimension is complete it assumes a whole new character. Its individual cross-sections fuse together and their discrete nature becomes indiscernible.

^g *The Principle of Cross-Sections*: A lower dimension can experience higher dimensions only in cross-section as they pass through in consecutive slices.

The Flatlander's 1D world is jammed like a circle right up against his perception. As a result the 2D 'sea of lava' that emerges from the point at which the Flatlander exists – widening out around him like ripples on a pond – is no longer part of his physical experience of the now. His 2nd Dimension extends perpendicularly and radially away from him and constitutes his past. He views his 2nd Dimension 'point-on' like the spokes of a cartwheel, resulting in the 0D invisibility of his temporal dimension from his viewpoint. In this way, his future emerges continuously from his present^d and moves out from him in concentric 1D circles to form his 2D past.

All sensory patterns which imprint upon his 1D world at his 'point of perception' are preserved intact and unalterable, set firm into this widening 2D pool which behaves as a stacked and melded 2D disk – his 'block' universe – in accordance with the *Principle of Character*^e (see Fig.2, Chapter 45). As this expands, it may appear *from his viewpoint* more and more thinly spread. Thus the Flatlander's memories may seem to 'fade' as they recede into his past.

Because his now experience is 1D, he is unable to access his 2D past *directly* from his physical viewpoint. All previous experience recedes from him as he continues to experience his universe in 1D cross-section^f, therefore the analogy tells us that his memory is not a 1-Dimensional phenomenon (i.e. not physically 'stored' on his immediate 1D circle) but exists as an aspect of the 2nd Dimension (his temporal dimension) which he is only able to scan from a higher dimension (in his case a 3rd).

In Chapter 45 we examined by our usual process of dimensional extrapolation (beginning again with a 2D space-time) the nature of our Flatlander's perception of his world, concluding that for him to have full awareness of his world it is necessary that he:

- Senses in 1D
- Experiences in 2D
- Imagines in 3D

In that chapter I noted that:

By describing the dimensionality of *A Square's* world we have now established in principle a *direct geometrical link* between the Flatlander's spatial and temporal experience, and his mind. Indeed, this mental picture is what constitutes his 'life'. It perhaps cannot account for how he *feels* about his life, but it certainly covers his basic cognition of the physical side of all that exists and happens around him.

It turns out that the Flatlander is not merely a '2-Dimensional being' after all – he is instead a *composite dimensional being*. And it is the smooth interplay between these (in his case) three dimensions that energises his world.

What we now have is a being who exists within a 2D space-time of one spatial and one temporal dimension, both of which obey the same *Flatland* principles, who is able to review his past – i.e. his 'so-far'

^a *The Principle of Viewpoints*: Any dimension may be viewed from three vantage points: from above (complete), level ('edge-on'), or below (in cross-section).

^b *The 'Edge-On' Principle*: Each dimension is viewed from within itself one dimension lower.

^c *The Role of Time Principle*: Each currently stacking dimension acts as the means of change (time) for the process of its own stacking.

^d The space-time event at which he exists as observer, located at *Centre B* in relation to the universe's origin at *Centre A*.

^e *The Principle of Character*: Once the stacking of a dimension is complete it assumes a whole new character. Its individual cross-sections fuse together and their discrete nature becomes indiscernible.

^f *The Principle of Cross-Sections*: A lower dimension can experience higher dimensions only in cross-section as they pass through in consecutive slices.

stacked block universe – by a ‘*Sphere’s* eye view’ from the next dimension up. For the Flatlander this 3rd Dimension constitutes his mind; or at the very least his subjective experience is of ‘aliveness’ through time.

Hyperland

Now we simply kick all this up to our 4D space-time, and... out pops reality! Our Hyperlander from earlier – whom we named *Abbott* – exists within a 4D space-time with his three dimensions of length, width and height similarly jammed up against his perception^a. His temporal dimension extends away radially, emerging continuously from his ‘point of perception’^b in a fourth direction, invisible only because he views it point-on (0D) in accordance with the *Magic Treadmill Principle*^c.

His experience of ever-changing 3D as it stacks to form his 4th Dimension, in turn stacking to form a 5th Dimension which ‘passes up through’ *Abbott’s* dimensional axis (because it forms what he is), from which dimensional vantage point within the structure he is able to look down^d and scan through all the experience of 4D space-time through which he has passed one 3D slice at a time – in other words, he is able to review his life.

In this picture we see how the mechanism makes it possible for memory to function ***wholly independently from the requirements of storage***. Access is by means of dimensional scanning because, rather than stored copies of experiences, it is the original experiences which are being viewed.

Reflection... If memory is able to function at the level of the 5th Dimension without any need for storage, ***a rudimentary memory is thus made available by the dimensional structure to all forms of life***.

Reflection... As described in Section 7, I take the view that the 5th Dimension represents only the most basic experiences of life, whilst the sophistication of the human mind is a phenomenon resulting from further stacking into the 6th, then 7th Dimensions. However, in discussing the subject of memory and creativity I do not wish to unnecessarily complicate what is already a complex scenario, therefore I talk here as though all the wonders of the human mind were available from a 5th Dimension. The principle still applies because the point at issue here is not how many dimensions there may be (we have already looked at that), but how memory may behave as a function of dimensional interaction as the lower is accessed from the higher.

Recombination

So, *Abbott* simply looks over his life so far: every single scrap of every event that has ever passed through his sensory experience, added to every previously recalled memory and every thought he has ever had – which of course includes every word he has ever read, spoken, or heard others speak, every song or

^a Remember... do not be deceived by depth. We are completely hemmed in and immersed by 3-Dimensionality in exactly the same way that the Flatlander is by 1-Dimensionality or that the Spacelander is ‘shrink-wrapped’ by 2-Dimensionality.

^b *Centre B* in the observer-centric ‘twin demisphere’ universe. See Sections 5 and 6

^c *The Magic Treadmill Principle*: Time, as the *n*th Dimension in an *n*Dimensional space-time, issues forth perpendicularly and radially from within the frame of reference of each space-time event. To the observer this *n*th Dimension appears 0-Dimensional (is viewed ‘point-on’) and is therefore invisible, but results in (*n*-1)Dimensional change, and stacking of the (*n*-1)D surface into the *n*th Dimension, taking the form of the past.

^d *The Principle of Accessibility*: Each dimension sees and may influence all those below.

piece of music he has ever heard, etc etc – and matches up anything he judges or feels to be relevant to his present situation. In this way *Abbott* scans for patterns and arrangements of elements and rearranges them – as the psychologists tell us – into new and creative combinations so that all his previous experiences, viewed dimensionally from above, become the source of all his current thinking and actions.

This scenario begs three questions:

1) *Why are there gaps in our memories?*

Abbott does have total recall, however at any given moment he does not have total access (due to the influence of the ‘*Edge-On*’ Principle^a), otherwise he would be overloaded, or a god! The subconscious occasionally throws a curveball at him – a familiar smell of plastic, or woodsmoke from his childhood; a colour that he knows is significant but can’t remember why; an impression of something that may be for some reason bad, or really good – but otherwise his memories are composed of all the usual suspects.

It is obvious that his mind cannot exist for the singular purpose of trawling through and accurately reliving the past. He has already done that, and now his mind must get on with the business of living. However, crucially, all his past experiences make up the resource on which he draws.

2) *Why are our memories inaccurate?*

On the face of it, if *Abbott* is directly viewing previous events his recall should be perfect. This is perhaps the chief objection to the idea of dimensional scanning, because clearly our memories can be hazy, inaccurate and often crazily wrong – and yet we can swear blind that we got it right (this often happens in court and is a major problem for the legal system). Even when we ‘see it in our mind’s eye’ we can still be wildly wrong. Anil Ananthaswamy writes in *New Scientist*,

‘Studies have shown that each time we recall an episode from our past, we remember the details differently...’^b

However, we invariably *assume* that our memories exist to provide us with a replay of the past and often act surprised when a clearly pictured event or person, event, date etc turns out to be wrong. Why is this? I believe it is because our memories *can* be trusted, because they are perfect – but not in the way we think.

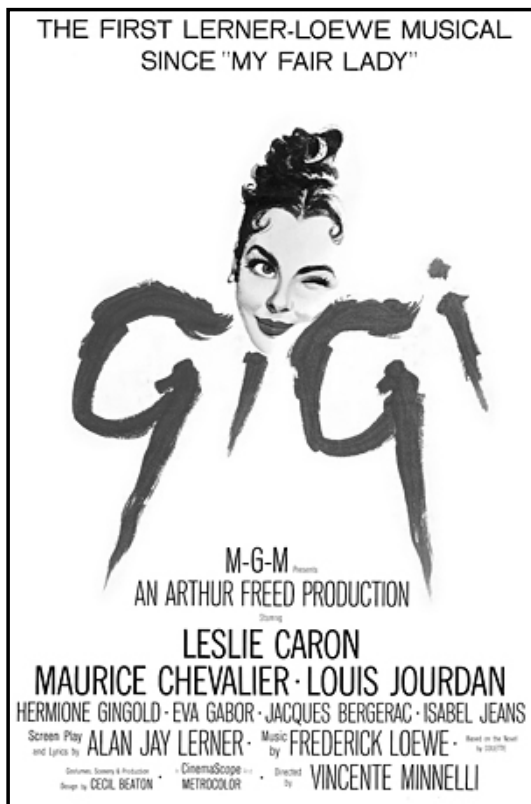
Clearly we have to be remembering things accurately if are looking directly at them, if we are gazing down dimensionally on our past and all that it contains. But any sense of accuracy is shredded by the fact that there is no necessity to do it in any kind of order. We are pick-and-mixing experiences in new and creative ways with no inner switch between scenes that we can control at will.

There’s an old song from the 1958 film *Gigi*, sung by Maurice Chevalier and Hermione Gingold^c, which amusingly celebrates this cerebral vacillation (along with the idea that women have better memories!)...

^a *The ‘Edge-On’ Principle*: Each dimension is viewed from within itself one dimension lower. *Abbott* reviews his 4D past from his 5D viewpoint. The consistency of the principle shows that he must experience 5D in 4D cross-section, therefore his very experience of aliveness is bound up with his perception of all the time through which he has passed, which he rightly calls ‘his life’. However, although he is free to roam 4-Dimensionally through time, whenever he lights on a particular experience it must immediately ‘reduce’ to 3D because he has selected it for inclusion (as a memory) in his cross-sectional experience of the 3D present. This is reminiscent (because it is, in *Flatland* dimensional terms, the same phenomenon) of the ‘collapse of the wave-form’ inherent in our dimensional principle, *The Principle of Duality*: A dimension, nD , may be viewed either as a ‘particle-like’ discrete cross-section of $(n+1)D$, or as a ‘wave-like’ smoothly integrated aspect of $(n+1)D$.

^b *New Scientist/The Collection*, Vol 1 Issue 1, 2014, Anil Ananthaswamy, *Am I the same person I was yesterday?*, P34

^c *I Remember It Well*, from “*Gigi*” (1958), Lyrics: Alan Jay Lerner / Frederick Loewe



I Remember It Well

Him: We met at nine. *Her:* We met at eight.

Him: I was on time. *Her:* No, you were late.

Him: Ah, yes, I remember it well.

Him: We dined with friends. *Her:* We dined alone.

Him: A tenor sang. *Her:* A baritone.

Him: Ah, yes, I remember it well.

Him: That dazzling April moon! *Her:* There was none that night,
And the month was June. *Him:* That's right. That's right.

Her: It warms my heart to know that you remember still the way
you do.

Him: Ah, yes, I remember it well.

We might consider the root cause of this problem dodgy retrieval from unreliable storage. However, there is a simple dimensional explanation: *we also remember remembering*. It goes like this:

If I cook from a recipe^a in 2012, then I relate the recipe to a friend in 2014, and then in 2016 I go tell it to my mum, the recipe I tell her will be the original from 2012 with a dash of the 2014 retelling. In other words, a recalled event or *'first association'*^b is combined with subsequent recollections of that event. This layering effect is further tainted by contact with all other experiences I have ever had of each of the ingredients, all the utensils used, the kitchen, the company, it goes on and on... Psychologists refer to this as a form of *'interference'* or *'contamination'*^c, and the permutations are endless.

Some dimensional scans will be primary recollections (scans of the original experience) and some will be secondary (scans of scans) and so on as we cross-pollinate and embellish successive recollections of the same thing. In this way the original gets swamped, blurred, altered, over-written by a kind of *'tracing paper'* effect. Paradoxically, although the chances of re-accessing the pristine original become increasingly remote, the process could actually reinforce clarity of recall, accounting for the lucidity of erroneous courtroom recollections.

This process would explain the power behind rote learning. We remember things more clearly by repetition because it is the deliberate act of laying down a multiple primary recollection, like layers of the *exact same* traced image, to be available to us as we scan our past, thus...

- increasing the odds that the mind will scan a primary recollection, and
- increasing the odds that our secondary recollections will also be accurate, by building up virtually identical *'traces'*.

Try this yourself just now by recalling a song that you have heard many, many times. The recording itself never changes, and you will hear it in your head very clearly because you are gazing dimensionally down upon many repeated plays within your past, recombining them together as one. Being identical these superimpose upon one another, building into a sharpened (and therefore more likely to be accurate) image. Unfortunately, like my Ian Gillan lyric, errors will also be compounded. This same layering effect may also be responsible for our ability to inwardly hear the familiar voices of friends and relatives, celebrities,

^a By the way, this is an illustration – I'm no cook!

^b Charles Fernyhough, *Pieces of Light*, Profile Books 2013, P64

^c *Ibid.*, P77

politicians etc as though they were speaking now. Charles Fernyhough describes how a friend had a ‘*vertiginous attack of nostalgia*’ when listening to hits on the radio from the 1980s which she had not heard much since^a. He suggests that ‘*it was that immunity from subsequent interference that made them particularly strong cues to memory*’^b.

Consider the following personal account^c,

‘I never cease to be amazed by the infinite capacity of the brain. It seems that nothing we have ever seen or heard is lost or forgotten. It just needs a word, a tune or an evocative scent and immediately the brain releases what we might have thought were forgotten images into the conscious mind.

I find that I have total recall. Why, I don’t know. It may be a gift or more likely a practised art. My habit of running the day and all its incidents through my mind as I settle down to sleep I am sure fixes thoughts into my mind for ever. In many ways this can be a double-edged sword, for while memories are all I have left of many people and places, some things are best left buried deep and forgotten.’

Written just a few years before he died, these were the words of London’s infamous Reggie Kray,

‘Banged up at night, I’d run the day through my mind – something I’ve done all my life – those revived memories would conjure up others. Faces and incidents blurred in my subconscious would spring out with fresh clarity and I’d find myself laughing out loud or at other times wiping a tear from my eyes.’

In dimensional terms, the power of a memory recalled for the first time in thirty years may not solely lie in its immunity from interference, but in the idea that the event is being gazed upon dimensionally from above as an ‘original’ and therefore quite literally relived experience. Neuro-psychologists inform us that the same parts of the brain are activated when we *actually* experience something as when we *relive* the experience through recollection – should this not lead us to ask, ***What’s the difference?***

Fernyhough writes,

‘Time travel sounds like a far-fetched idea, and literally speaking it is: no one has yet built a machine that would take us back to the future. But psychologists have found ‘mental time travel’ to be a useful concept for thinking about the shuttling between present and past that is involved in memory.’^d

Modern psychology is just one metaphor away from the dimensional scanning model.

Reflection... Try this now, it’s rather fun... do something memorable like tapping on the book or making a silly face, and at the same time say hi to your future self who has come back to watch you. Then, wait a few moments before relaxing, closing your eyes and recollecting the event, but don’t be rude... say hi to yourself in the past!

There is clearly powerful evidence within academia for the fundamentals of a dimensional paradigm wherein a memory is not ‘retrieved from storage’ at all, but accessed through actual ‘*mental time travel*’; eavesdropped by our ‘fly-on-the-wall’ future selves from the dimension above: the 5th Dimension, of which we and all living things are composed.

^a *Feels Like the First Time* by Foreigner? (Actually that was 1977 but I couldn’t resist ☺)

^b Charles Fernyhough, *Pieces of Light*, Profile Books 2013, P63

^c Reggie Kray and Peter Gerrard, *Reggie Kray’s East End Stories*, Sphere 2010, P13

^d *Ibid.*, P78

The ‘sealed up and complete’ nature of the past means there are few boundaries to an act of remembering, and thus no particular requirement that the original memory be of any more significance than all its wondrous embellishments. We view our past with 100% accuracy, as we also view our views, and our views of views of views of views... but they are all infused in and through one another, informing one another by what psychologists call a combinative process, because *remembering the past is not the sole purpose of memory*.

Indeed, as the next section reveals, it may be the least, because even when simply trying to remember an event we just can’t help being creative!

3) *Can anything we think be original?*

Our brains love to mix-and-match. We may tell ourselves and others that we have a ‘bad memory’, but it’s likely that we just have the perfectly normal human experience of creatively recombining selections from our past somewhat haphazardly – building scenarios, following themes...

Every thought that passes through our heads is a re-hashing of something that has already cemented itself into our past in one form or another, interacting afresh with the newness of the present. Even the most ‘original’ of artists can list their influences, and what comes out is effectively just a new permutation – with the sense of originality provided largely by the newness of the context to which it is applied. This is the creative process, and we are all creative in different ways as our genetic individuality in the present taps into the unique richness of our past.

Pick and Mix

In the world of psychology, any idea that creativity is somehow a separate process from everything else that goes on in the mind is being left behind, as indeed is the idea that *anything* in the brain functions independently. As Scott Barry Kaufman, scientific director of the Philadelphia-based Imagination Institute^a, tells us,

‘Instead, the entire creative process – from preparation to incubation to illumination to verification – consists of many interacting cognitive processes...’^b

‘Creativity is driven by memory.’ writes Art Markman PhD in a *Psychology Today* article entitled ‘Creativity is Memory’. Describing a study by researchers Kevin Madore, Donna Rose Addis, and Daniel Schacter^c, he concludes,

‘More broadly, whenever you are in a situation in which you need to solve a creative problem, you need to find ways to reach into your memory to find information that will be relevant to solving the problem... The most important thing to keep in mind, though, is that all creative work requires using your existing knowledge to help you to do new things.’^d

Our memories are the place from which our creative minds pull together experience and knowledge, the raw materials on which we draw for the business of life. Moment by moment we recombine them in new ways to forge our path, overcome problems and generally face the future.

Contrary to our basic assumptions, our memories are not there to provide us with perfect playback of our personal history, because it is neither necessary nor possible for memory to act in that way. Instead we

^a <http://imagination-institute.org> - Accessed 8th Feb 2017

^b <https://blogs.scientificamerican.com/beautiful-minds/the-real-neuroscience-of-creativity> - Accessed 8th Feb 2017

^c <http://journals.sagepub.com/doi/abs/10.1177/0956797615591863> - Accessed 8th Feb 2017

^d <https://www.psychologytoday.com/blog/ulterior-motives/201510/creativity-is-memory> - Accessed 8th Feb 2017

reach into the fridge of time, select from it the marmalade of useful experience, and spread it skilfully across the toast of life. It is far more important that we live well.

This marriage in the mind of creative thinking and memory blends well into the smooth continuum of a dimensional structure. Occam's razor, in my view, favours the *Flatland*-based geometry of dimensional scanning over the rather cumbersome neural-encoded 'engram' storage model of memory, which has so far resisted all attempts at empirical verification by the (one might have thought, given the tools now available) simple expedient of the discovery of the store.