This is the third of three linked articles on the web, all broadly based on the work of Richard Davidson and his colleagues. The three are:

i. B 25: Four Key Themes of Neuroscience relevant to our Well-Being
ii. B 26: Well-Being and Flourishing as a Skill we can Develop
iii. B 27: Three Key Types of Meditation and their varying and specific effects on Well-Being (this article).

Different forms of meditation have different effects, and these effects can be very helpful to know about if we are to embrace the various benefits that different forms can offer us. In an Autogenic context, there is an important question for us to be aware of: "Does Autogenic Training cover just one form of meditation or more than one?" [See also de Rivera 2017 / 2018]. This article explores these themes.

Acknowledgements: as previously, great thanks to Annie Sturgeon, Autogenic Therapist, and Michael Ross, my brother, for their proof reading and suggestions. Thanks also to all those who have contributed to my continuing education since I retired from General Practice in 2005.

Contents

Contents *continued*

Contents *continued*

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Introduction /

1. Introduction

1.1: Overview of the three forms of meditation discussed

Meditation has been practised for at least three millennia, and ancient wisdom indicated that this facilitates well-being. When Richard Davidson met the Dalai Lama (Davidson 2018], the Dalai Lama asked why psychology and psychiatry in the west focused almost exclusively on negative / destructive emotions, with almost no research on positive affects such as joy, generosity, and compassion. Professor Davidson did not have a very good answer to this question, and decided to investigate – with the help of very experienced meditators from the Tibetan (Dalai Lama) traditions.

A more recent flowering of the subsequent research by Davidson and others has been brought together in a very readable paper in a 2014 edition of the Scientific American [Ricard; Lutz, and Davidson 2014]. Some authorities on Autogenic Training emphasise its deep-rooted links with meditative traditions [e.g. de Rivera 2018]; whereas others have seen it more as a stand-alone approach or in terms of autosuggestion.

In this article we will look at some research on three specific forms of meditation, and then consider to what extent these may be relevant to Autogenic Training and Therapy approaches. The three meditation formats are:

		Clarification
I.	Focused Meditation	Here the focus is on one thing, e.g.: the breath; or a candle.
II.	Mindfulness	In terms of Open Monitoring Meditation
III.	Loving Kindness and Compassion	Compassion based meditation catalyses neuro-circuits for action (to reduce suffering). This acts as an anti-dote to "mere" empathy which can lead to empathic burn out [Singer & Klimecki 2014]
		Ricard; Lutz, and Davidson 2014; Davidson 2022

Figure 1.1: Three basic forms of Meditation

Separate, though overlapping, with the above is the distinction between two basic forms of meditation.

- Calm Abiding Meditation and
- Insight Meditation (Vipassana).

These are succinctly discussed in a short and excellent introduction to meditation by Ringu Tulku[1]: 'The Lazy Lama looks at Buddhist Meditation' [Ringu Tulku 1998]. Calm Abiding meditation is of the greatest importance for stilling the mind; yet per se it does not lead to Insight Meditation. Autogenic Training can be seen as a form of Calm Abiding Meditation; yet it can also facilitate the development and creation of greater mindfulness – and thereby insight [de Rivera 2018 p 119]. In this connection, it is important to consider that our posture may be important.

> You cannot go as far in meditation lying down as sitting. It is possible to find total rest in a sitting position, and in turn to advance deeper in meditation in order to resolve the worries and troubles that upset and block your consciousness.
>
> Hanh 1975 /1991 p 33

This is not to say that the horizontal position in Autogenic Training is not of great value; yet for developing mindfulness and insight it can be seen as limiting. Insight meditation is specifically associated with Mindfulness and Loving Kindness Meditation; while Focused forms of meditation are an essential backdrop to developing the former two.

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[1] Tulku: A Tibetan Buddhist "Spiritual Teacher" [Tulku - New World Encyclopedia].

1.2: Attention and Meditation

All three of the above forms of meditation have a specific quality; and that is that they all depend upon attention of a particular sort. That is, meditation is not about mind wandering[2], though during meditation the mind may wander. The faculty of meta-attention[3] enables us to realise that our mind has wandered, and then gently bring it back (to the appropriate matter our attention was on).

It can be argued that developing our abilities in attention is one of the most important aspects of meditation. Over one hundred years ago, William James said:

> ….. the faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. No one is *compos sui* [cs] if he have it not. An education which should improve this faculty would be *the* education *par excellence.* But it is easier to define the ideal than to give practical directions for bringing it about.
>
> William James 1891 p 424
>
> Italics in original
>
> [cs] *In this context, "master of her- / his self"*

Richard Davidson[4] was familiar with the work of William James in his early studies in psychology, and in 1974 he went to India and had instruction from Goenka in vipassana meditation. His experience here was life changing, and his "gut sense was that he had found the most excellent education James had sought" [Goleman & Davidson 2017 p124].

Generally speaking, in meditation, we have a focused (or focalised[5]) attention. With developing meta-attention, we realise when the mind has wandered, and as indicated above, gently bring it back. This is not to say that there is something innately wrong with a wandering mind, and it can lead to creativity and new discoveries[6]. However, it can also lead to negative ruminations which can take us in a downward spiral. Developing our meta-attention through meditation can act as an anti-dote to such downwardly spiralling ruminations. A wandering (and non-focused) mind is linked with the Default Mode Network, which is discussed further in Section 3.

*** *** ***

In their article, Ricard et al give what I find to be a very helpful definition of Meditation for the purpose of their research, referring to it as:

> …… the cultivation of basic human qualities such as a more stable and clear mind, emotional balance, a sense of caring mindfulness, even love and compassion – qualities that remain latent as long as one does not make an effort to develop them. It is also a process of familiarization with a more serene way of being.
>
> Ricard et al p 42

---

[2] The term Mind wandering has different connotations in different contexts, and in this paper we will be looking at it in at least three different ways. Please see glossary entrance for Mind wandering.

[3] Meta-Awareness or Meta-Attention: the ability to observe our thoughts, feelings, sensations and impulses as they are happening [Reitz 2018].

[4] Founder & Director of the Centre for Healthy Minds, University of Wisconsin-Madison

[5] A term used by Luis de Rivera which I rather like.

[6] When our mind is free-wheeling, and we are not thinking about anything in particular, our Default Mode Network becomes active – see Section 3 below.

2. Three forms of Meditation researched by Ricard, Lutz, and Davidson

Each of the three forms of Meditation considered here are valid in their own right. However, for the health of our mind, body and spirit it is good practice to embrace all three. In the same way, if we are to become physically healthy, more than one form of exercise is required. For example, exercise needs to embrace three modalities: Strength, Stamina and Suppleness, while at the same time being mindful of Safety [Patel 1989 pp 184-196].

2.I: Focused Meditation

This is often the first form of meditation that we are introduced to.

> Focused Attention Meditation aims to tame the centre of the mind in the present moment while developing the capacity to remain vigilant to distractions.
> [Ricard et al 2014 p 42]

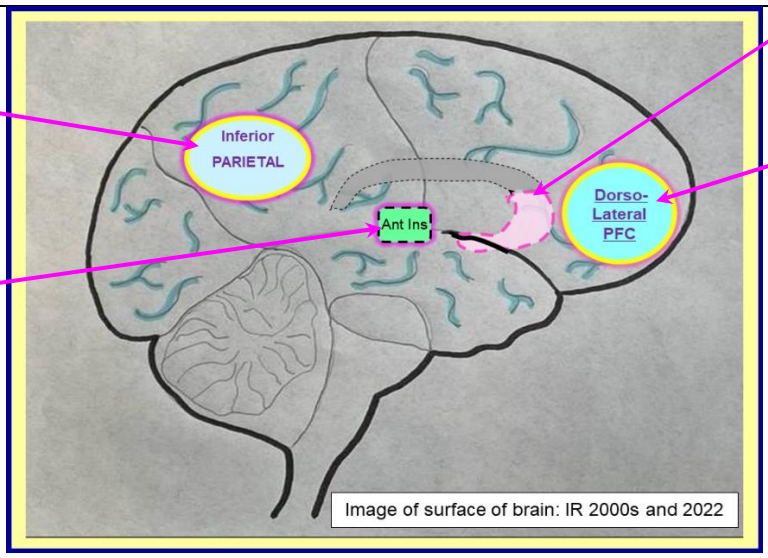
Autogenic Training (in terms of the Standard Exercises) can, to some extent, be regarded as a form of Focused Meditation. The neuro-circuits associated with focused attention are primarily in the Dorsolateral Pre-Frontal Cortex (DLPFC), and these allow us to sustain our focus. However, as we know, our focus may wander. So what happens then to our focused attention? Well, it collapses. Yet part of Meditation is to become aware that the mind has wandered. Figure 2.I A summarises the sequence of then getting back to our focused attention.

Mental state	Brain regions involved
1) Focused Attention	❖ Dorso-Lateral Pre-Frontal Cortex
2) Mind wandering (i.e. distraction occurring)	➢ Posterior Cingulate Cortex and Pre-Cuneus; and other areas of the: ➢ Default-Mode Network. E.g.: Medial Pre-Frontal Cortex, Lateral Temporal Cortex, and Posterior Inferior Parietal Region.
3) Becoming Aware of Distraction	Salience Network including: ❖ Anterior Insula[7] and Anterior Cingulate Cortex ❖ Inferior Parietal Lobe
4) Reorientation by detaching ourselves from the distraction. This allows us to return to:	Including: ❖ Inferior Parietal Lobe ❖ Dorso-Lateral Pre-Frontal Cortex
5) Focused Attention	❖ Dorso-Lateral Pre-Frontal Cortex

Figure 2.I A: Sequential events in focused attention meditation and brain regions involved

Becoming aware of the distraction, and re-orientation to the area of focus, are aspects of meta-attention; three brain areas related to this are shown in Figure 2.I B.

[7] Anterior Insula or Anterior Insular Cortex



Inferior Parietal Lobe

Anterior Insular

Anterior Cingulate Cortex

Dorso Lateral Pre-Frontal Cortex

Note: not shown, Mind Wandering Circuits

Figure 2.I B

Schematic representation of Four areas of the brain associated with Focused Attention

Comment on Figure 2.I B

The following regions are vital for focused attention:

i. The Dorsal Lateral PFC plays a vital part in Focused Attention meditation.
ii. The Anterior Cingulate Cortex and the Anterior Insular enable us to become aware of the distraction.

The Inferior Parietal Lobe and the Dorso Lateral PFC are important in our ability to reorient ourselves following a distraction.

Focused Attention Meditation is a crucial aspect of meditation and allows us to develop, over time, Meta-Attention.

Meta-Awareness (Attention)

- Being able to track the quality of one's own awareness – for example, noticing when your mind wanders or you've made a mistake."

Lapate et al 2016

See also B26 on Website

Such meta-awareness is one of the skills that we are developing in Autogenic Training.

2.II: Mindfulness / Open Monitoring Meditation [Ricard et al 2014]

Ricard regards Open Monitoring Meditation (OMM) as a form of Mindfulness, and one that is essential for developing Well-Being and Flourishing.

Mindfulness, or open-monitoring meditation, requires the meditator to take note of every sight or sound and track internal bodily sensations and inner self-talk. The person stays aware of what is happening without becoming overly preoccupied with any single perception or thought, returning to this detached focus each time the mind strays.

Ricard et al 2014 p 42

This is subtly different from Focused Attention. In OMM we become aware of sounds and sights and internal chatter – yet with a non-judgemental acceptance of them, and at the same time not getting hooked into a feeling or thought, which can otherwise lead to negative ruminations[8]. Ricard, Lutz and Davidson go on to say:

> As awareness of what is happening in one's surroundings grows, normal daily irritants—an angry colleague at work, a worried child at home—become less disruptive, and a sense of psychological well-being develops.
>
> Ricard et al 2014 pp 42-43

Further research has shown that this form of meditation can help us to develop "non-reactive awareness", and increases our ability:

- "To better control and buffer basic physiological responses – inflammation or levels of a stress hormone – to a socially stressful task such as giving a public speech or doing mental arithmetic in front of a harsh jury" [Ricard et al 2014 p 43].

The efficacy of the Standard Exercises in Autogenic Training can be understood in various ways.

- Some regard it as a form of auto-hypnosis, so the arms and legs may feel heavy at the suggestion.
- On the other hand, take for example the "My Solar Plexus is ……Warm" exercise. We are here moving our attention to "become aware of sensation" [Antonova 2020] within the upper abdomen, which is manifesting as warmth as a result of the thermogenesis within the cells around this solar core [de Rivera 2018].
    - We can regard this as a form of Open Monitoring. This information is coming to us via our Autonomic Afferents [Craig 2015].

2.III: Loving Kindness and Compassion

This form of meditation is different in that it has within it an implicit aim to develop our compassion for self and others. Some Meditation teachers suggest that at the beginning of the meditation we have this in mind: that this developing of compassion is for our benefit and for the benefit of others. Once we start on the meditation per se, then we focus on it – and not the outcome, which might well entail an aspect of striving. We cultivate the ideas and feeling of loving kindness / compassion to others – including family, "strangers, and enemies" [Ricard 2014]. Ricard and colleagues go on to say:

> The practice entails being aware of someone else's needs and then experiencing sincere, compassionate desire to help that person or to alleviate the suffering of other people by shielding them from their own destructive behaviour.
>
> Ricard et al 2014 pp 43-44

[8] This is the form of Mindfulness Meditation described by Jon Kabat Zinn in his classic "Full Catastrophe Living" [Kabat-Zinn 1990 / 2004]. This is how he describes what an observer of a class of Mindfulness Meditation might see: "These people you would be looking in on are not just passing the time daydreaming or sleeping. You cannot see what they are doing, but they are working hard. They are practising *non-doing*. They are actively tuning in to each moment in an effort to remain awake and aware from one moment to the next. They are practising mindfulness" [Kabat-Zinn op cit pp 19-20]. This, he says, can also be called "Practising Being".

This implies and means that compassion is directly related to *action*. We cannot alleviate suffering simply by meditating on compassion. Yet the meditation can become the catalyst for wholesome actions.

Davidson emphasises that compassion results in activation of neurocircuits associated with

- "motor action"….. in other words, actually doing something about the suffering;
- this is mediated specifically through the ventral striatum [Davidson 2022[MLI]].
- Empathy does not involve such activity behaviour [Davidson op cit.], and can lead to empathic burnout.

In a study at the Max Plank Institute in Leipzig, Singer and Klimecki distinguish between Compassion and Empathy. Compassion is associated with Social Engagement ("approach and pro-social motivation") and positive feelings of love and warmth to others, and implies that we are in a Ventral Vagal PSNS state of the Autonomic Nervous System [Porges 2011; and see Polyvagal Theory].

> In contrast to empathy, compassion does not mean sharing the suffering of the other: rather, it is characterized by feelings of warmth, concern and care for the other, as well as a strong motivation to improve the other's wellbeing. Compassion is feeling for and not feeling with the other.
>
> Singer and Klimecki 1014

Research suggests that Compassion training through meditation not only increases Well-Being in the meditator; it also seems to act as an anti-dote to empathic burnout, and acts as a catalyst to relieve suffering in others.

> According to the Buddhist contemplative tradition from which this practice is derived, compassion, far from leading to distress and discouragement, reinforces an inner balance, strength of mind, and a courageous determination to help those who suffer.
>
> Ricard et al 2014 p 44

Long term meditators in compassion have distinct EEG (Electro Encephalograph) patterns compared to non-meditators, as illustrated in Figure 2.III A.

Figure 2.III A Matthieu Ricard undergoing an EEG while Meditating Illustration from Ricard et al 2014 with thanks. The EEG monitors on-going brain activity.		Long term practitioners of Compassion Meditation are able "to sustain a particular EEG pattern", and "de-scribed the well-defined sense of self as becoming less fixed and permanent". i.e. a reduction in the sense of a separate self**.

** The /

**The "reduction of a sense of a separate self"[9] is important in the development of compassion and insight; it is inter-related to the realisation that we are "full of non-self elements" and an important step in the realisation of Inter-Being [Hanh 2012; and F 7 on website].

*** *** ***

Bessel van der Kolk, discussing mindfulness in the context of Post Traumatic Stress Disorder, states:

> "There's a German researcher by the name of Tonia Singer, who is probably the best mindfulness researcher around who researched a whole bunch of different forms of mindfulness methods and she finds that mindfulness is only useful if accompanied by self-compassion and self-understanding. If it doesn't go together with self understanding for which she studied IFS, internal family systems, it is not largely helpful. But *as long as you don't have a compassionate attitude towards yourself, mindfulness is not helpful either*.
>
> Bessel van der Kolk 2019 p 89
> Italics and underlining added by IR

This is of great interest and importance, as it suggests that some form of compassion training is crucial for Well-Being. The inference I draw from the above is that:

- Through engendering a *compassionate attitude towards ourselves, mindfulness becomes particularly helpful and nourishing to ourselves and those we are in contact with.*

At the same time, increased compassion for self and others facilitates a sense of Inter-Being[10].

Loving Kindness / Compassion Meditation and body posture

I recently attended a five-day course organised by Mindfulness Now. Research suggests that the position of our hands can influence the efficacy of meditation. Having our palms facing upwards can facilitate the development of an open and warm heart to others. See also F 10 on web, and Cacioppo et al 1993.

*** *** ***

Brain neuro-circuits and networks involved in compassion include the Medial Pre-Frontal Cortex (PFC). This is of great significance as it includes the nine PFC functions described by Siegel that include Attuned Communication, Emotional Balance, Insight and Intuition [Siegel 2007; and see also C 2 on Website]. Another important network of the brain involved in compassion is the Ventral Striatum – see Figure 2.III B.

[9] A sense of (a separated) self is highlighted by us differentiating between ourselves (the subject) and the object. It is this that leads to concepts of "me", "my"; and hence e.g. to "my rights" – perhaps at the expense of the rights of others. This has been called "selfing" [Church 2020 pp 69-70]. Historically, the western perspective has been one of the observer and observed. Yet nuclear physicists are aware that their very presence (in an experiment) can change what they are observing: hence, rather than using the term observer, a better understanding of reality is that we are participant observers [Hanh 2017 p 35]; this resonates with the realisation of Inter-Being. Meditation can facilitate this process, in what has been called "the subject object shift", that results in a "field of non-local consciousness". This can be linked in with profound personal transformation and transcendence [Church op cit].

[10] See also Neff 2016 regarding Self Compassion Scales.

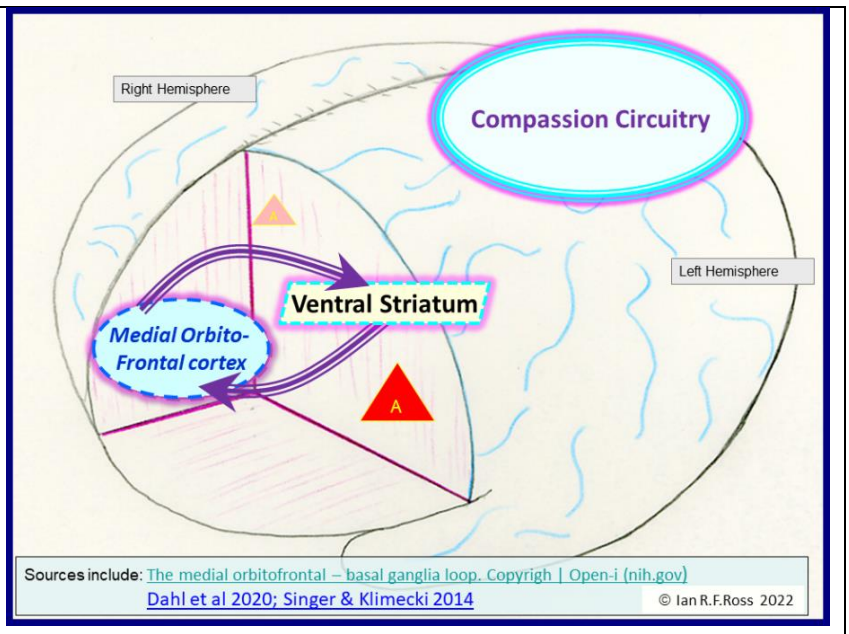
Figure 2.III B

Schematic representation of Compassion and the Associated activity of the medial Pre-Frontal Cortex and Ventral Striatum.
(A: Amygdala)

These two neuro-physiological circuits are represented with dashed outlines to indicate *areas of the brain are not distinct, and overlap*.

- The Ventral Striatum is associated with "actions" to reduce e.g. suffering.

Davidson 2022[MNI]



For further details, see Figure 2.5 E, page 20: of web article B 26

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2.4[AT] The Three forms of Meditation and Autogenic Training

The first two of these three forms of meditation both play a significant part in the Autogenic Training Standard Exercises.

i. Focused Attention is clearly relevant – without focus our minds will tend to wander.
ii. Open Monitoring Meditation can become part of our AT practice. A soon as we become aware of a distraction, a wandering mind, a feeling, a thought, we can simply return to the AT sequence.
    - On the other hand, another approach if we are distressed about what the mind has wandered to, is to say silently, for example: "distress arising"[11], and then
    - return to the sequence.

What of the third form discussed here: Loving Kindness and Compassion?

The Autogenic Standard Exercise sequence is associated with an increase in Ventral Vagal Parasympathetic activity, and so with a sense of safety and wholesome social engagement, both with ourselves and with others. In this sense it is moving us into a space and form of being that facilitates Compassion.

*** *** *** *** ***

3. Reflections on Creativity /

[11] This is a form of "naming and taming" (technically Affect Labelling) [Lieberman 2007; Siegel 2007] which has been shown to reduce our distress (e.g. anger, irritation; in which case we can say: "Irritation arising"). See B12 on website: "Affect Labelling, Autogenic Training, and reducing Emotional Distress".

3. Reflections on Creativity, Mind Wandering, and the Default Mode Network in relation to forms of Meditation

3.0 Preamble

In the paper by Ricard, Lutz and Davidson it is clear that if our mind wanders during meditation, then this can interfere with our mindful attention to meditation. However, one of the skills of meditation is the developing of meta-attention: and becoming aware that our mind has wandered. We then gently return to the area of focus (e.g. a candle; 'arms and legs heavy').

Is mind wandering per se then always a problem? While writing this on 30th July 2022, I take a brief break and look above the computer and out of the window: to bushes, flowers, trees; and above that, clouds and blue sky. The leaves are being bathed by dappled sunlight. My mind has wandered from writing this article, yet research suggests that such brief breaks can increase our work "productivity" and improve our well-being [Mosley 2022; Bar 2022].

Mind wandering is associated with increased activity of the Default Mode Network (see below).

This is not a new subject, and was discussed fully in Rossi's 1991 'The 20 Minute Break'; and from those concepts I developed the idea of Trance Like States (TLS), which is explored in Ross 2010 Essay 3[12]: While writing that article I would, not infrequently, would go for a walk along the coast to give myself space and nature which sometimes resulted in a free-flowing of my mind. On these walks, new perspectives would from time to time come to me, as sort of Einfall (German for "Fallen from Heaven"). These came about mainly because on the walks in nature my mind was free-flowing and wandering – with no specific agenda.

Areas of the brain involved in the DMN include:

- posterior cingulate cortex (PCC)
- precuneus
- medial prefrontal cortex,
- bilateral temporoparietal junction

Utevsky et al 2014

Figure 3.0
Main DMN brain areas

*** *** ***

When our minds wander, our so called Default Mode Network (DMN) becomes active. During Meditation, a special form of mental attention, the DMN becomes less active. Yet Meditation changes some of the interconnections within the DMN that are felt to be of importance to our Well-Being.

[12] Essay 3: Biological Rhythms; Gene Expression; and Healing with Reference to Autogenic Training and Learning Theory pp 97-136

In this Section 3, we discuss the Default Mode Network, and its relevance to health and well-being – within the context of the three key forms of meditation discussed in this paper. Some may wish to go straight on to Section 4.

3.1 Brain energy use and our Default Mode Network

There has long been an assumption that when we are thinking about something, or doing a calculation, then our brains will be much more active than when we are day dreaming, or allowing our minds to take us where they will. Yet research in recent decades shows this not to be the case; our brains have more or less the same overall activity whether we are working on a complex mathematical problem, or simply allowing our minds to "free wheel".

Let us look at this a little more closely.

Brain Energy Use

- The weight of our brains is approximately *2%* of the weight of our bodies, yet
- our brains consume approximately *20%* of our energy / oxygen use, whether we are answering a difficult exam question or just letting our minds wander.

[based on Goleman & Davidson 2017 p 150; and 2018 p 150]

*** *** ***

The real surprise was that some areas of the brain become *less active* when we are engaged in complex mental tasks such as mathematical calculations. In the early 2000s, Marcus Raichle was doing research into brain activity when we are carrying out different mental tasks.

> To do this kind of research back in 2001, Raichle used a strategy common at the time: comparing the active task to a baseline where the participant was doing "nothing". What troubled him: during highly demanding cognitive tasks – like counting backwards by 13s from the number 1,475 – there was a set of brain regions that deactivated.
>
> Goleman & Richardson 2017 pp 149-150

These deactivated brain regions he (Raichle) called the Default Mode Network:

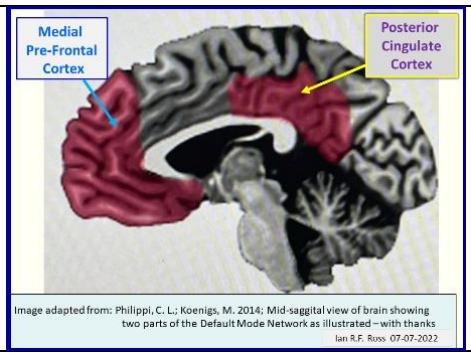
> Raichle identified a swathe of areas, mainly in the mPFC (short for midline of the prefrontal cortex) and the PCC (posterior cingulate cortex), a node connecting to the limbic system. He dubbed this circuitry the brain's "default mode network".[1]
>
> Goleman & Richardson 2017 p 150
>
> [1] Raichle et al 2001

To summarise so far: when we are doing nothing in particular mentally, our brains are just as active as when we are trying to solve a puzzle. This active part of the brain (when we are "doing nothing") is called the Default Mode Network (DMN), and involves:

- The midline Prefrontal Cortex and
- Posterior Cingulate Cortex, as illustrated below.

Figure 3.1A
Very Basic Circuits of DMN

Image adapted from
Philippi, C. L.; Koenigs, M. 2014;
Mid-saggital view of brain showing
two parts of the
Default Mode Network



The DMN is best seen as a series of regions in the brain that are highly connected neuronally. To recap, these include the following, based on Utevsky et al 2014:

medial Pre-Frontal Cortex	posterior Cingulate Cortex (PCC)	Precuneus	bilateral Temporoparietal Junction

Figure 3.1B
Some important areas of the Default Mode Network

We will now look at three mental states that the DMN is associated with.

3.2 What are our brains actually doing when our Default Mode Network is active?

3.2.1 DMN associated with "me" and "my" states – often associated with distressing ruminations and a 'Wandering mind'.

Further research suggested that the DMN can be very active when we are focused on ourselves, and this can be associated with us going into negative ruminations.

> When scientists asked people during those periods of "doing nothing" what was going on in their minds, not surprisingly, it was not nothing! They typically reported that their minds were wandering; most often, this mind wandering was focused on the self – How am I doing in this experiment? *I* wonder what they are learning about *me*; *I* need to reply to Joe's phone message – all reflecting mental activity focused on "I" and "me" [2]
>
> Goleman and Richardson 2017 p 151
> *Italics in original*
>
> [2] Mason, M.F. et al 2007[13]: Wandering Minds: The Default Networks and Stimulus Independent Thought. Science 315: 582: 393-395; doi:10.1126/science.1131295

So here the DMN is active when our mental state is internally orientated towards ourselves, as further elucidated below:

[13] I have reservation about this being the correct reference. There does not seem to be any reference in Mason et al 2017 to these concepts of me and my in this context. Rather, the article focuses on a discussion of the significance of "Stimulus-Independent Thoughts" in the context of our minds wandering. This article does not mention creativity – which I sense is enhanced when we are mentally "free-wheeling". More relevant references are those connected with Afflictive Stickiness [[Davidson 2015; 2018; Goleman &Davidson 2017]; see also the companion web article B 26 on Affective / Afflictive Stickiness: Section: 3.3A Negative Ruminations, Afflictive Stickiness, and Reduced Resilience – and antidotes to these; pp 25-29.

In short, our minds wander to something mostly about ourselves:

- *'My thoughts, my emotions, my relationships, who liked my new post on my Facebook page'* –

all the minutiae of our daily life story.

By framing every event in how it impacts ourselves, the default mode makes each of us the centre of the universe we know…….. Our default mode continually rescripts a movie where each of us stars, replaying particular favourite or upsetting scenes over and over"

Goleman & Davidson 2017 p 151
Bullet point added

Replaying upsetting scenes over and over is familiar to us when we are in a downward spiral on distressing / negative ruminations. This is a classic example of the work of the Second Arrow.

When we are undertaking an Autogenic sequence / meditating, it is not uncommon for us to find our minds have wandered – and this can typically be in the form of negative ruminations, especially in the early days of practising. However, with time, and the development of meta-attention, we become increasingly aware of our wandered mind, and then gently bring it back to the relevant part of the sequence (e.g. Solar Core / Plexus Warm).

*** *** ***

Attention is crucial to meditation – and it is through Meditative Attention that we develop increasing meta-attention. This is what William James was referring to in his classic 1891 book (see Section 1.2 above). Focused Attention, Open Monitoring, and Loving Kindness forms of Meditation can all play their part in reducing such distressing / negative ruminations – and so the Second Arrow.

3.2.2 DMN and Self Reflection

It may be helpful to distinguish between distressing ruminations, as discussed above, and the function of Self Reflection [Knox 2003 / 2012]. Appropriate Reflection is essential for our well-being and personal development. Self Reflection can be seen in terms of Socrates' classic and pertinent statement:

The unexamined life is not worth living

Socrates
[Ref: Wikipedia 2022]

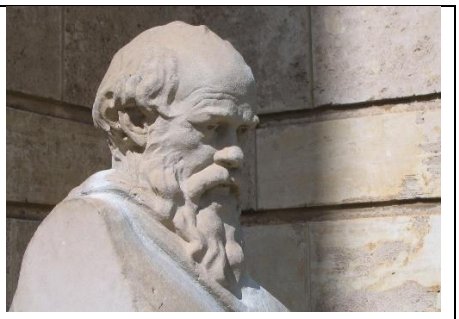


Figure 3.2.2S: Socrates
Photograph by Greg Beirne.

Bust carved by Victor Wager from a model by Paul Montford, University of Western Australia, Crawley, Western Australia
Photograph of Socrates: Cropped by User Tomisti - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=808060

Mindfulness, meditation, and appropriate Self Reflection inter-are (see Inter-Being). Moshe Bar discusses Mindwandering extensively in his recent new book [Bar 2022].

> Because meditation affects mindwandering at its core, it also influences the DMN.
>
> Bar 2022 p 142

Our Reflective Function[14] is considered an essential part of ourselves to develop in our journey through life [Knox 2003 / 2012]. Problems can arise if the Self Reflection becomes excessive, and these matters are discussed in further detail in the companion article B 26: Section 3.6: Ability to self-reflect.

Briefly:

- lack of Self Reflection is associated with autism and psychopathology, while
- Excessive Self Reflection is associated with Depression and Anxiety (see Figure 3.6A Self-Reflection levels and Well-Being in B 26). So for balance we need some, yet not too much, self-Reflection.

In other words, the mindful path is a middle way that:

i. avoids excessive negative "self-reflection" that then downwardly spirals – so inflicting the Second Arrow deeper and deeper,
ii. allows us appropriate self-evaluation in terms of our Reflective Function, and at the same time
iii. gives some space for our minds to freely wander / look out of the window at clouds / sunlight on bushes or trees or flowers.

All of these involve changes in the dynamics of the Default Mode Network. The wandering mind, as in negative ruminations, increases activity of the DMN. The mindful path implies mindfulness.

*** *** ***

As indicated above, Self-Reflection is associated with the Default Mode Network, with particular reference to the medial Pre-Frontal Cortex (mPFC) and Post Cingulate Cortex (PCC), as illustrated below (imported from Figure 3.6B of B 26 on web).

[14] Our Reflective Function depends on the integrity and working of our Pre Frontal Cortex, especially the medial PFC. Following significant trauma, our PFC can be knocked out – going as it were offline [van der Kolk 2014]. See also Reflective Function and Trauma

Comments on Figure 3.2.2A

- The medial PFC and the Posterior Cingulate Cortex are essential for Self-Reflection.
- Damage to the mPFC can critically impair our abilities regarding self-reflection and self-insight.
- Such damage interferes with wholesome social interactions – and our ability to assess how our behaviour may affect others, leading, for example, to diminished:
  - Empathy
  - Guilt
  - Shame
  - Embarrassment and
  - Social dis-inhibition

Philippi & Koenigs 2014
Beer et al 2003

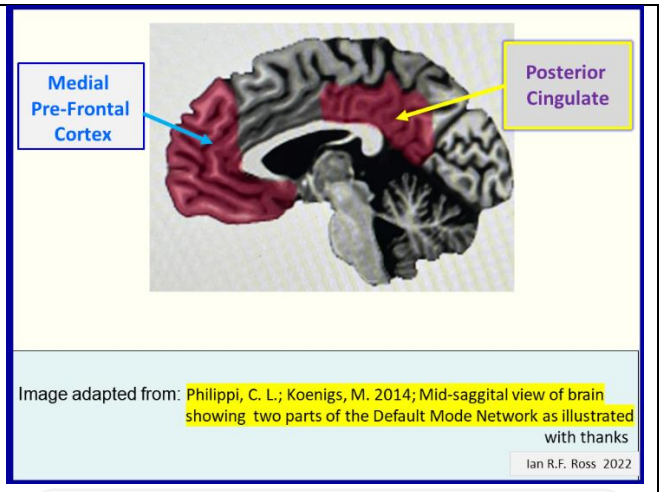


Figure 3.2.2A
Two key areas of the Default Mode Network involved in Self-Reflection

*** *** ***

As indicated in 3.2.2A above, a wandering mind, when focused on what is not right, on what is distressing, can lead to an unhappy mind. The following abstract from Mason et al succinctly summarises some of these dynamics from a neuro-physiological perspective.

Many philosophical and contemplative traditions teach that "living in the moment" increases happiness.

- However, the default mode of humans appears to be that of mind-wandering, which correlates with unhappiness, and with activation in a network of brain areas associated with self-referential processing.

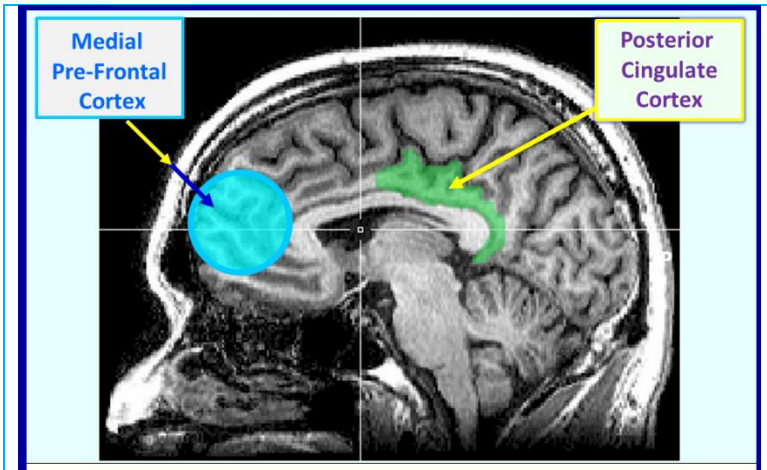
We investigated brain activity in experienced meditators and matched meditation-naive controls as they performed several different meditations (Concentration, Loving-Kindness, Choiceless Awareness).

- We found that the main nodes of the default-mode network (medial prefrontal and posterior cingulate cortices) were relatively deactivated in experienced meditators across all meditation types.
- Furthermore, functional connectivity analysis revealed stronger coupling in experienced meditators between the posterior cingulate, dorsal anterior cingulate, and dorsolateral prefrontal cortices (regions previously implicated in self-monitoring and cognitive control), both at baseline and during meditation.

Our findings demonstrate differences in the default-mode network that are consistent with decreased mind-wandering. As such, these provide a unique understanding of possible neural mechanisms of meditation.

Mason et al 2007: Abstract
Bullet points added by IR

The figure below shows the two main DMN brain areas "relatively deactivated" by experienced meditators cited by Mason et al.



Sagittal MRI slice with highlighting indicating location of the posterior cingulate
(image from Wikipedia with thanks)
plus super-imposed Medial Pre-Frontal Cortex Region [adapted by Ian R.F. Ross 2022]

Figure 3.2.2B

The Medial Pre-Frontal Cortex, and the Posterior Cingulate Cortex, both show reduced activity in experienced Meditators.

These are both circuits of the Default Mode Network.

Based on Mason et al 2007

Figure 3.2.2C, on the other hand, shows areas of increased *connectivit*y during meditation. Loving Kindness and Open Monitoring (mindfulness) meditation can, in particular, be seen as forms of meditation that embrace a certain quality of Self Reflection.

Figure 3.2.2C

The Three Brain areas indicated
(Posterior Cingulate Cortex, Dorsal Anterior Cingulate Cortex, and Dorso-Lateral Pre-Frontal Cortex)
all show increased intra-connectivity in Experienced Meditators Before and During Meditation
[Mason et al 2007]

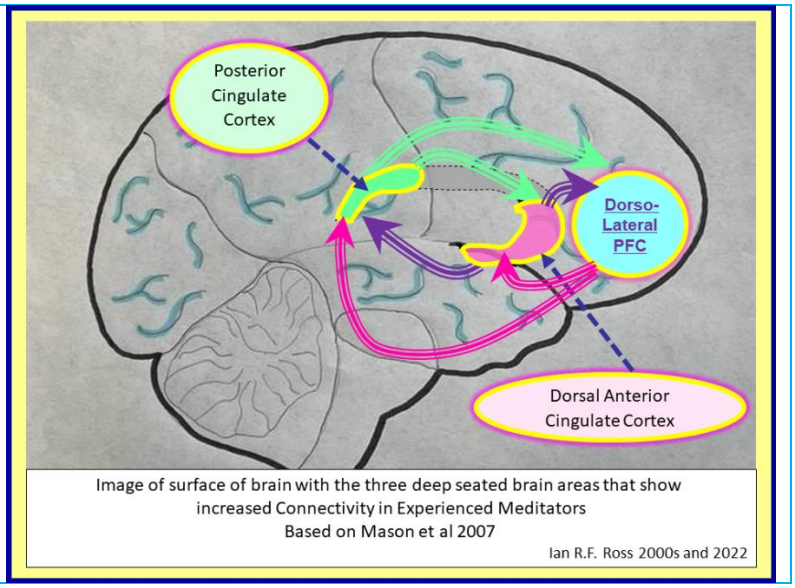


Image of surface of brain with the three deep seated brain areas that show increased Connectivity in Experienced Meditators
Based on Mason et al 2007
Ian R.F. Ross 2000s and 2022

Some concluding remarks re Reflection and the DMN

There is nothing wrong with Self Reflection per se – and this is implicit in the above discussion – especially as indicated in Figure 3.2.2C. The negative ruminations discussed in section 3.2.1 can be seen in terms of excessive and / or an inappropriate forms of "self-reflection"; and this will:

- tend to occur if our Autonomic State is already in the danger / Sympathetic Nervous System / hypervigilant state; or the life threat / 'give up state' of the Dorsal Vagal Para-Sympathetic Nervous System [Porges 2011].

Afflictive Stickiness tends to be associated with the Danger or Life Threat state [see B 26 in this series], and indicates a mind that has become over-full with inappropriate thoughts including, perhaps, self-recriminations; indeed, it has become too full of these. Bar succinctly puts it:

> Mind fulness is the enemy of mindfulness
>
> Bar 2022 p 144

Bar's statement brings to mind the old story about a western expert who goes to see an eastern guru. The guru said: "we will start with a cup of tea." Having made the tea, he poured from the teapot into the expert's mug; yet he kept pouring the tea even after the cup was quite full.

The expert said: "What are you doing, you idiot; cannot you see the mug is full?"

The guru gently replied: "you too are full; in your present state there is no chance you will be able to develop wisdom from anyone."

*** *** ***

3.2.3 DMN and Creativity

Research over the last couple of decades indicates a subtle relationship between creativity and the DMN. For example, in the abstract of the paper by Beaty et al they say:

> The present research used resting-state functional magnetic resonance imaging (fMRI) to examine whether the ability to generate creative ideas corresponds to differences in the intrinsic organization of functional networks in the brain.
>
> - We examined the functional connectivity between regions commonly implicated in neuroimaging studies of divergent thinking, including the inferior prefrontal cortex and the core hubs of the default network.
> - Participants were pre-screened on a battery of divergent thinking tests and assigned to high- and low-creative groups based on task performance.
> - Seed-based functional connectivity analysis revealed
>
> > - greater connectivity between the *left* inferior frontal gyrus (IFG) and
> > - the entire default mode network in the high-creative group.
>
> > - The *right* IFG also showed greater functional connectivity with
> > - bilateral inferior parietal cortex and
> > - the left dorsolateral prefrontal cortex
> > in the high-creative group.
>
> The results suggest that the ability to generate creative ideas is characterized by increased functional connectivity between the inferior prefrontal cortex and the default network, pointing to a greater cooperation between brain regions associated with cognitive control and low-level imaginative processes
>
> Beaty et al 2014
> Extract from abstract
> Bullet points added, and layout changed

The two figures below illustrate this increased functional connectivity that research indicates comes about through increased creativity.

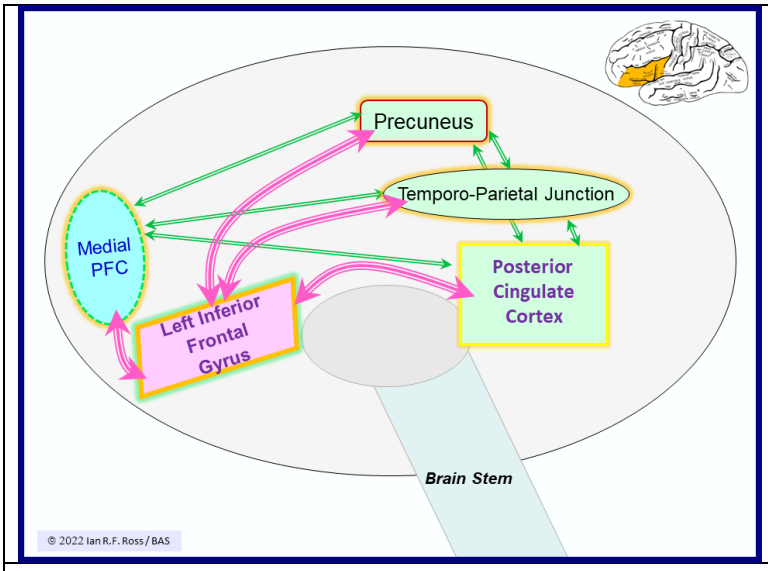


Figure 3.2.3A

Areas of Increased Connectivity in High Creative Group between Left Inferior Frontal Gyrus and four parts of the Default Mode Network

highly schematic
based on Beaty et al 2014

Top right inset image of the Left IFG shown in yellow-orange is from Wikipedia; with thanks

Comments on Figure 3.2.3A

i. The four areas of the Default Mode Network shown are:
- Medial Pre-Frontal Cortex
- Precuneus
- Temporo-Parietal Junction and
- Posterior Cingulate cortex.

This network is highly interlinked, as indicated by the green two way arrows.

ii. The ability to generate creative ideas is associated with the development of *increased inter-connectivity* between the Left Inferior Frontal Gyrus (IFG) and the DMN.
- This is show by the pink two way arrows.

Figure 3.2.3B below, by contrast, illustrates the interconnectivity between the Right Frontal Gyrus and other brain areas associated with those in the high creative group.

Comment on Figure 3.2.3B

i. Diagram illustrates increased connectivity in brain areas associated with increased creativity in relation to the Right Inferior Frontal Gyrus with the:
   a) Left Dorso-Lateral PFC and the
   b) Left and Right Inferior Parietal lobes, which are themselves interlinked through the Corpus Callosum, illustrated in the mauve two way arrows.

ii. The Left Dorso-lateral PFC may play an important role in "day dreaming", during which it shuts out external inputs if safe to do so [Turnbull 2019]

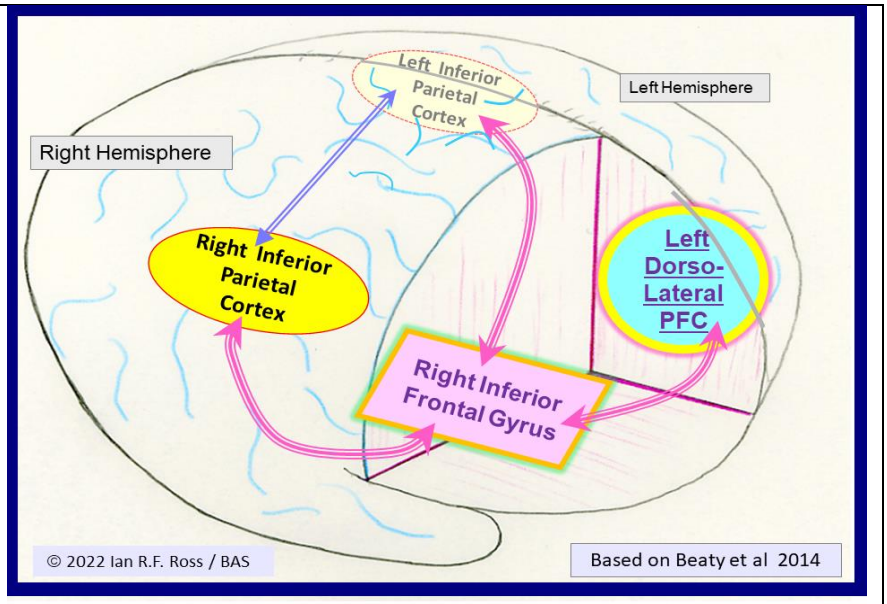


Figure 3.2.3B

Increased Functional Interconnectivity of Right Inferior Frontal Gyrus with three brain regions

3.2.4 Mind Wandering Facilitates Creative Problem Solving

Finally in this section 3 (Reflections on Creativity, Mind Wandering, and the Default Mode Network) we will briefly look at a paper by Benjamin Baird et al [Baird 2012]. Their abstract below, while somewhat technical, gives a good overview of the benefits of mind wandering in the context of "creative incubation".

Abstract

Although anecdotes that creative thoughts often arise when one is engaged in an unrelated train of thought date back thousands of years, empirical research has not yet investigated this potentially critical source of inspiration. We used an incubation paradigm to assess whether performance on validated creativity problems (the Unusual Uses Task, or UUT) can be facilitated by engaging in either a demanding task or an undemanding task that maximizes mind wandering.

- Compared with engaging in a demanding task, rest, or no break, engaging in an undemanding task during an incubation period led to substantial improvements in performance on previously encountered problems.
- Critically, the context that improved performance after the incubation period was associated with higher levels of mind wandering but not with a greater number of explicitly directed thoughts about the UUT.

These data suggest that engaging in simple external tasks that allow the mind to wander may facilitate creative problem solving.

Baird et al 2012
Bullet points added

This is of special interest as it backs up the idea which has been around for millennia, that allowing our minds to wander results in increased creative problem solving[15].

Let us /

[15] Thanks to Michael Ross for this re-formulation of the original problematic text

Let us say that we have some sort of problem to solve that is taxing us. The research shows that:

- engaging in an undemanding task, rather than a demanding task, or taking a break, or having a rest,
- facilitates the incubation period and results in an improved ability within us to solve the problem.

Baird et al put it this way:

> Our data support the notion that specific types of unrelated thought facilitate creative problem solving.
>
> Baird et al 2012 p 4

The figure below illustrates the improvement in classic creativity tasks in those in the undemanding task group, which facilitates mind wandering.

Figure 3.2.4A
Bar chart showing significant improvement in Unusual Uses Task when there is no demanding task, or when the individual is a rest.

Figure imported from Baird et al 2012 Figure 1 p 2 with thanks

These data suggest that allowing our minds to wander improves our performance in a creativity task. Specifically, Baird et al say:

> The study reported here demonstrated that
>
> - taking a break involving an undemanding task improved performance on a classic creativity task (the UUT) far more than did taking a break involving a demanding task, resting, or taking no break.
> - Notably, this improvement was observed only for repeated-exposure problems, *which demonstrates that it resulted from an incubation process* rather than a general increase in creative problem solving.
>
> Together, these data corroborate, within a single experiment, the conclusion of a recent meta-analysis (Sio & Ormerod, 2009) showing that incubation effects were larger in studies in which individuals engaged in an undemanding interpolated task than in studies that included a demanding interpolated task or a rest period.
>
> Baird et al 2012 p 4

This brings to mind the research by Rossi that breakthroughs can be made during just such periods of incubation. This is in the context of Rossi's "four-stage creative process in psycho-biologically orientated psychotherapy" [Rossi 2002 p 68; and see Glossary Trance Like States].

*** *** ***

Separate from the above research, it is pertinent to recall the discovery / understanding of the benzene ring by the nineteenth-century German chemist August Kekulé [Robinson 2010]. Kekulé had claimed that the idea of the structure of this compound came to him following a dream in which he saw the image of a snake eating its own tail[16]; in other words, an ouroboros – an ancient symbol of a snake or dragon eating its own tail, as depicted in Figure 3.2.4B.

Figure 3.2.4B

Ancient Image of Ouroboros

An ouroboros in a 1478 drawing in an alchemical tract
Image from Wikipedia with thanks

Ouroboros - Wikipedia

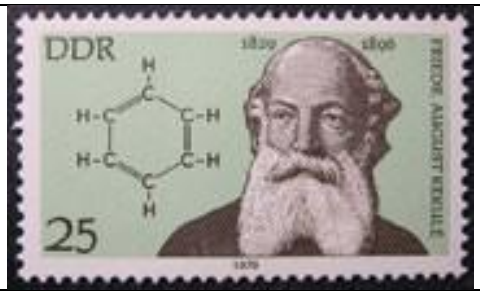


Figure 3.2.4C

Commemorating the German chemist
August Kekulé
who dreamed of the ouroboros, and from this deduced the structure of benzene in 1865.

https://www.nature.com/articles/465036a.pdf

A further discussion regarding Kekulé's discovery of the Benzene Ring, as refracted through Robinson [op cit], can be found in the glossary – Benzene Ring Structure and elucidation.

3.2.5 Creativity in relation to the Left and Right Hemispheres.

The above discussion has focused on some specific research relating to the creative process, yet may in some ways be missing the point. Linear and analytical thinking are associated with Left Brain dynamics, while the creative process is more a function of the right hemisphere. Those who suffer from injury (lesions) to the right side of the brain show reduced creativity. McGilchrist states:

> …… There is, then, a considerable body of evidence from naturally occurring, or temporarily experimentally induced, lesion studies, from direct observation of creative artists, and from a host of different kinds of experimental studies, that quite consistently suggest not just that depressing the right hemisphere tends to depress creativity, including originality, flexibility and divergent thinking, but that depressing the left hemisphere enhances creativity, probably because the mind is released from tendencies towards the linear, explicit and linguistic modes of apprehension typical of the left.
>
> McGilchrist 2021p 277[17]

Meditative approaches tend to activate the right rather than the left hemisphere, and Luthe, in the context of Autogenic Training, called this the Second Autogenic Switch [de Rivera 2018 pp 38, 60, 70, 160; see also related article: B 24 Autogenic Switches and Well-Being on website].

[16] Some authorities have suggested that this claim was false, and he used it as an excuse for having stolen the idea from others. The article by Robinson is a review of a book by Alan Rocke [Rocke 2010]. However, Robinson, in his review, states that Rocke provides good evidence that the claim was true.

[17] See also McGilchrist 2021 pp 421-426, for further wonderful insights regarding the creative process MJR.

These matters are beyond the scope of this present article, and it is planned that they will manifest in D 13: Creativity, Hemispheric Specialisation, and Autogenic Training.

*** *** *** *** ***

4. Forms of Meditation and Autogenic Training

All three of the forms of meditation discussed in this article can be seen as important in terms of personal and professional development, and in creating a wholesome society for the Well-Being of all. In view of this, it is suggested that all three are embraced in our approach to Autogenic Training. This was in many ways implicit in Schultz' concept of Self Realisation (Wallnöfer 2000); Luthe's Authentic Self, and perhaps even more so in Luis de Rivera's Autogenic 3.0.

De Rivera's approach embraces two specific forms of meditation, as indicated below.

- Feeling Meditation or "Feeling the Feeling" and
- Meditation on Feelings or "Constructive Feeling Meditations" [de Rivera 2018 pp 107-145].

Both of these can flow into Insight Meditation. De Rivera was once discussing Feeling Meditation with the yogi master Alejandro Torrealba, who commented: "this is pure Vipassana" [de Rivera 2018 p 119]. Meditation on Feelings can also specifically lead to Insight. Figure 3A summarises these two forms of Autogenic Meditation created by de Rivera.

Autogenic Meditation de Rivera notation	IR notation / designation	example	Comments
Feeling Meditation	Feeling the Feeling	Meditating on distressing feeling / upset[18]	Overlaps with Vipassana / Insight
Meditation on Feelings	Constructive Feeling Meditations	Calmness; Zest for life; Love; Inter-Being	Some forms can catalyse Insight
Transmutation of Feelings [de Rivera 2018 pp 142-145]	Transmutation of Feelings	Transmutation of e.g. jealous / hate into love / compassion	This is more complex; not to be undertaken till the above two have been integrated
			De Rivera 2019 pp 129-145

Figure 4A: Autogenic Meditations of de Rivera leading to Insight

Luis de Rivera in these forms of meditation is indicating that at this stage in AT we can make a definite decision to expand and develop certain qualities – such a calmness and, I would suggest, a deeper understanding of inter-connectedness (Inter-Being). So here there can be a definite intention, whereas in an AT sequence we simply allow what unfolds to unfold. However, once we start the meditation per se, a firm desire / intent for a specific outcome is problematic as it may well interfere with the free flowing of the Default Mode Network and creativity.

Within some meditative traditions, there are sometimes definite intentions, as illustrated by Gelong Thubten.

[18] This is more in terms of day to day upsets; not suggested per se if there has been a recent major trauma.

> In practical terms, when you do even a short session of meditation, it is good to actively create a compassionate intention[19].... through spending a few moments mentally establishing the motivation for your meditation……. You can think, "I am doing this practice not only for myself, but also for others. Through this training, may I eventually be able to help others, in the deepest way possible." Creating this aspiration through your thinking is incredibly powerful, as it sets the tone for the meditation, connects you with a deeper reason for meditating and invests its power in the most beneficial way. It gives you a plan, a purpose, transforming helpless feelings of empathy into the dynamic path of compassion training.
>
> Gelong Thubten 2019 pp 173-174

Such an approach can be a good preparation to Constructive Feeling Meditation. Furthermore, as already indicated in this article, Focused Attention and Mindfulness / Open monitoring meditation do not specifically lead to increased compassion (see Figure 1.1]. See also glossary entry: Autogenic Training and Meditation.

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5. An overview summary of the Three Key Types of Meditation

Some of the fundamental dynamics of the three key types of meditation discussed in this paper are summarised in Figure 5.

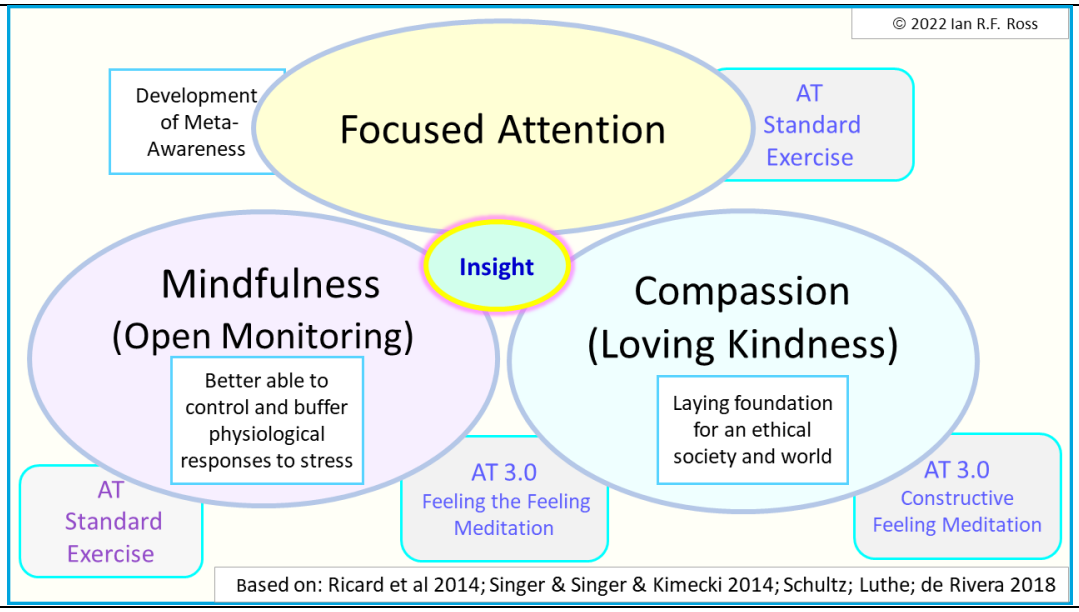


Figure 5
Three Modalities of Meditation refracted through Autogenic Training

Developing and expanding our concepts of Meditation and Mindfulness facilitates "the potential to enhance human health and well-being" [Ricard 2014]; and at the same time:

[19] There are specific exercises that help us to develop Compassion. See, for example F10 on this website (planned for Autumn 2022) : "Constructive Feeling Meditation on Compassion" – based on an approach by Akong Rinpoche.

> "….. the ability to cultivate compassion and other positive human qualities lays the foundation for an ethical framework unattached to any philosophy or religion, which could have a profoundly beneficial effect on all aspects of human societies."
>
> Ricard, Lutz & Davidson 2014 p 45

This is of great relevance to Autogenic Training – if we see it in terms of embracing various forms of meditation [de Rivera 2018]. In fact, de Rivera's developments in his Autogenics 3.0 can best be seen as a continuation of the work of Schultz, Klaus Thomas, Luthe and Heinrich Wallnöfer [See also Bird & Pinch 2002 pp 225 – 245; Bird 2015 pp 262 – 265].

*** *** ***

6. Brief Concluding reflections/

6. Brief Concluding reflections on the present series of articles: B 25; B 26; and B 27.

These are, to briefly recap:

i. B 25: Four Key Themes of Neuroscience relevant to our Well-Being
ii. B 26: Well-Being and Flourishing as a Skill we can Develop
iii. B 27: Three Key Types of Meditation and their varying and specific effects on Well-Being

The first article, B 25, looked at the four key themes of neuroscience relating to Well-Being. These are:

a) Neuroplasticity: the ability of the brain to change from pre-birth to old age. This means that we can continue to learn and develop; and that previous dysfunctional learning patterns can be undone, and replaced with life-enhancing neuro-circuits.
b) Epigenetics: our genes do not determine the course of our lives. Genes can be switched on and off, depending upon both the external and internal environment[20] (e.g. the way we think. Negative ruminations will tend to reinforce genes that can activate Life Threat or Danger neurocircuits [see also Polyvagal Theory / Porges 2011]).
c) Innate goodness: research indicates that we are born with an innate goodness: this will flourish if we are blessed with nurturing, loving and mindful parents – and environment; including loving aunts, uncles, grandparents and teachers. If we are not, this can still be tapped into as they are part of our innate neuro-circuits, even if they have been overshadowed / suppressed.
    - Innate goodness can be tapped into through the three forms of meditation discussed in this paper.
    - All can enhance a feeling of safety and being grounded; and compassion based meditation can specifically catalyse these neuro-circuits – including, for example, Jen.
d) Inter-connectedness of the Mind-Body-Brain continuum. The way we think affects our body; our body state is reflected in the way we feel, interact with others, and think.

*** *** ***

The four themes of B 26 Well-Being and Flourishing as a Skill we can Develop are:

a) Attention / Awareness: these are crucial aspects for training the mind, and facilitate meta-awareness, discussed in this present paper.
b) Connection: having a sense of connection to both others and ourselves is vital for our well-being. It is also a foundation aspect of Inter-Being. A wholesome sense of connection with those around us and the world allows our innate goodness to develop.
c) Insight: as our insight develops, we begin to understand the human condition more impartially, allowing for compassion to develop for ourselves and others – wherever they are in the world.
d) Purpose: a sense of purpose is vital for our well-being. Loss of a sense of purpose can result in suffering ….and depression. Being connected to others facilitates a sense of purpose.

*** *** ***

[20] See, for example: Rossi 2002

Purpose and meaning

Meaning and a sense of purpose are closely interlinked. Jung was particularly concerned about meaning, in those he saw. Loss of a sense of meaning is not compatible with Well-Being. The following historical perspective is of just as much significance and relevance now as it was when Jung wrote it in the 1930s.

> The reproach levelled at the Freudian and Adlerian theories is not that they are based on instincts, but that they are one sided. It is psychology without the psyche, and this suits people who think they have no spiritual needs or aspirations. But here both doctor and patient deceive themselves. Even though the theories of Freud and Adler come much nearer to getting at the bottom of the neuroses than any earlier approach from the medical side, their exclusive concern with the instincts fails to satisfy the deeper spiritual needs of the patient. They are too much bound by the premises of nineteenth-century science, too matter of fact, and they give too little value to fictional and imaginative processes. In a word, they do not give enough meaning to life. And it is only meaning that liberates.
>
> Jung 1932; para 496

This very much resonates with McGilchrist's views [McGilchrist 2021]. In the following paragraph, Jung goes on to say:

> Ordinary reasonableness, sound judgement, science as a compendium of common sense, these certainly help us over a good part of the road, but they never take us beyond the frontiers of life's most commonplace realities, beyond the merely average and normal. They afford no answer to the question of psychic suffering and its profound significance. A psychoneurosis must be understood, ultimately, as the suffering of a soul which has not discovered its meaning. But all creativeness in the realm of the spirit as well as every psychic advance of man arises from the suffering of the soul, and the cause of the suffering is spiritual stagnation, or psychic sterility.
>
> Jung 1932; para 497

The importance and vitality of psyche and spirit endure and are perennial. At the same time, we are now much more aware than in Jung's time of the significance of early attachment to a feeling of safety and well-being; and of being connected with ourselves and others – and so of being in touch with our soul. See, for example, "The Body Keeps the Score" [van der Kolk 2014 pp 121-122; and the Glossary entrance: Dissociation: Knowing and Not Knowing. Meaning is also discussed further in the glossary of Ross 2010: pp281-282].

*** *** ***

The above dynamics of B 25 and 26 are summarised in Figure 6.1 and 6.2.

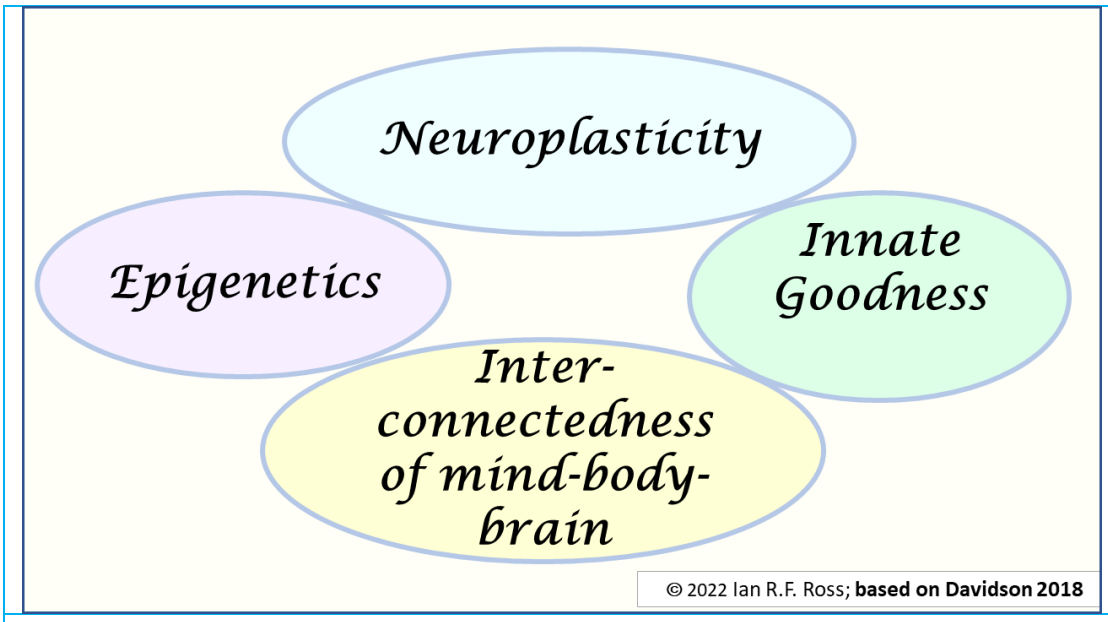


Figure 6.1
Four Key Themes of Neuroscience related to our Well-Being
Imported from B 25 Figure 1B p 5

The second article, B 26: looks at four specific skills that facilitate Well-Being and Flourishing. These are summarised in Figure 6.2 as a Skill we can Develop.

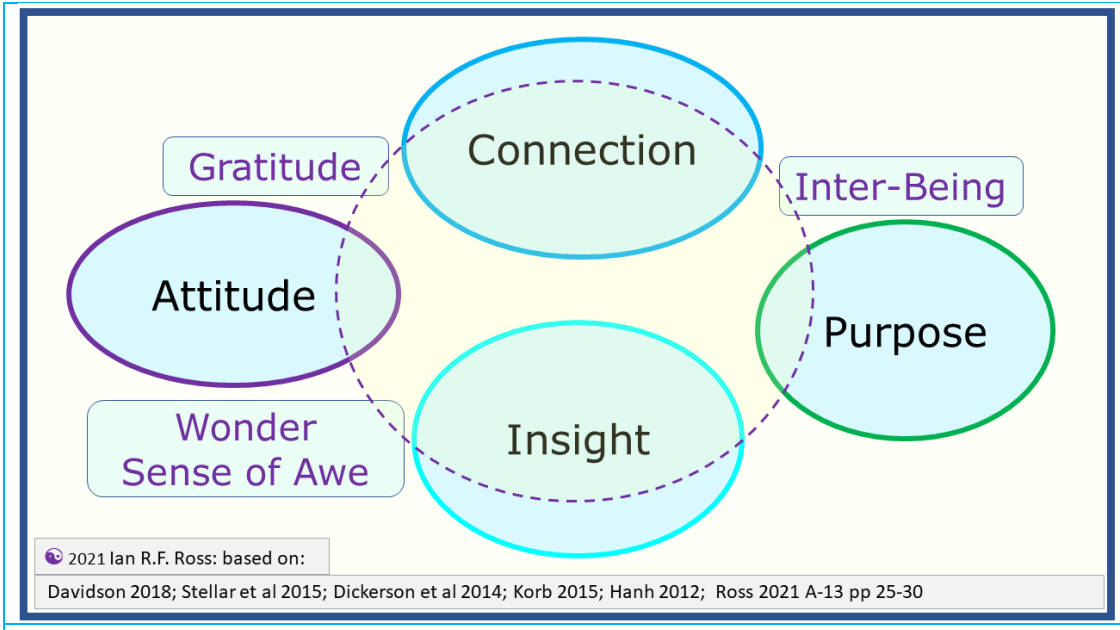
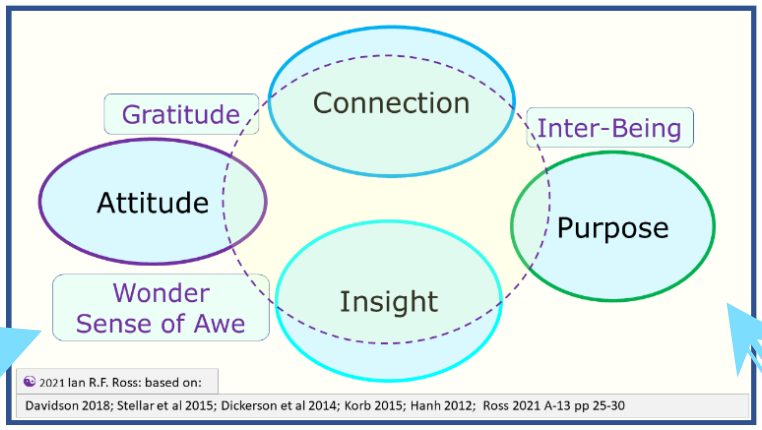
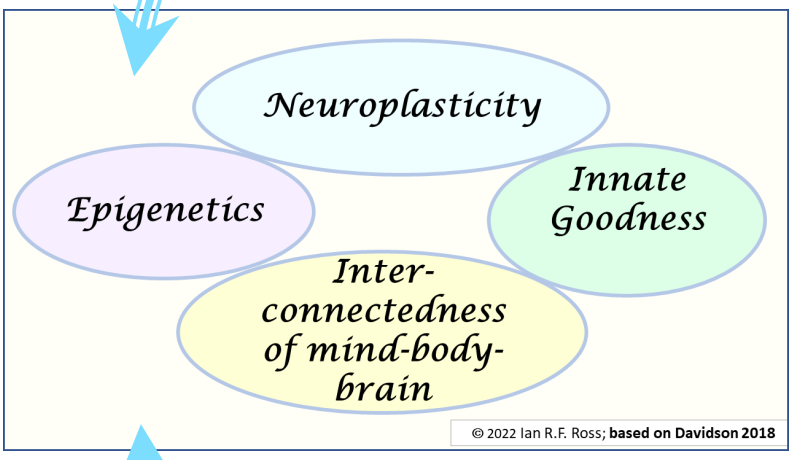


Figure 6.2
Four Skills that Facilitate Well-Being and Flourishing
Imported from B 26 on web: Figure 5.2 p 53

Figures 5, 6.1 and 6.2 above summarise some of the dynamics of the three articles B 25, B 26, and B 27. Figure 6.3 below includes all three of the relevant figures, and their interconnections.

Four Skills that Facilitate Well-Being and Flourishing





Four Key Themes of Neuroscience related to our Well-Being

Three Modalities of Meditation refracted through Autogenic Training

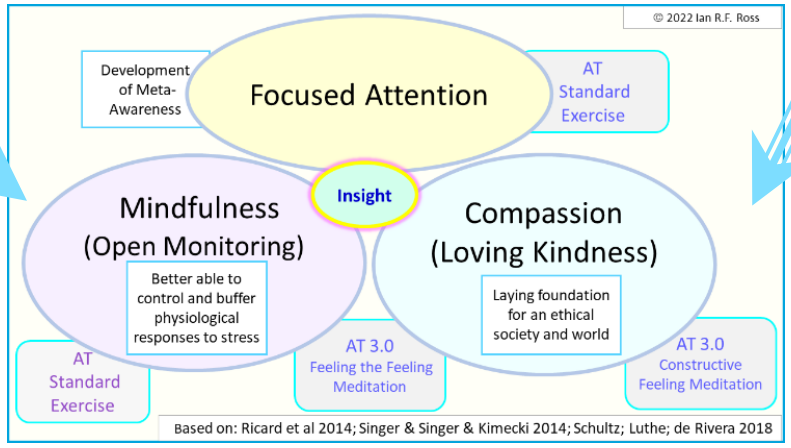


Figure 6.3
Inter-Relatedness of B 25, B 26, and B 27

*** *** ***

The above three perspectives on Well-Being are grounded in Connectedness, Innate Goodness (Jen), and Meditation. These embrace Inter-Being and Compassion. These themes are explored further in F7, and the following planned articles: F9, F10, F11 and F13, details of which can be found in Section 7 below.

*** *** ***

7A: Thematically related articles in British Autogenic Society Newsletter		
Ross, Ian R.F. 2021: The Three Autogenic Switches into Wellbeing	BAS Newsletter No. 19: Winter 2020	ISSN 1467-6036
Ross, Ian R.F. 2021: Four Key States of Autogenic Training	BAS Newsletter No 20: Spring 2021	ISSN 1467-6036
Ross, Ian R.F. 2021: Some Themes of Neuroscience relevant to Well-Being	BAS Newsletter No 22 Winter 2021	ISSN 1467-6036
Ross, Ian R.F. 2022: Well-Being as a Skill we can Develop – flourishing Autogenically	BAS Newsletter Ni 23 Spring 2022	ISSN 1467-6036

*** ***

7B: Thematically related articles on website: www.atdynamics.co.uk		
A13	Expressive Autogenic Resilience Training Exercise Series C	2021
B 5	Emotions, Frontal Lobe Dynamics, and Autogenic Training in the context of autonomic afferent lateralisation (2014)	2014
B 2	Reframing, Reappraisal and Well-Being	2011
B 12	Affect Labelling, Autogenic Training, and reducing Emotional Distress	2011
B 15	Towards a Growth Mindset – *Based on the work of Dr Carol S. Dweck*	2014
B 17	Windows of Affective Tolerance: *Reflections on Childhood Distress, Procedural Learned Tendencies, and the Therapeutic Dyad in the context of Primary Process Emotions and the Polyvagal Theory* [based on Ogden 2006 / 2009]	2014
B 18	The Space to Choose – reflections on the gap between the stimulus and the response	2014
B 19	Reflections on a Secure Base (2017)	2017
B 20	Separation Distress and Well-Being – *Neuro-physiological reflections on developing a Secure Base*	2018
B 22	A playfully sympathetic approach to the Polyvagal Theory: *An introduction to the concepts of Flourishing Autogenically*	2021
B 24	Autogenic Switches and Well-Being. This deals with some of the underlying dynamics that can facilitate balance and harmony in those regularly practising Autogenic Training	2020
B 25	Themes of Neuroscience relevant to Well-Being	2022
B 26	Well-Being and Flourishing as a Skill we can Develop	2022
B 27	Three Key Types of Meditation and their varying and specific effects on Well-Being	2022
C 2	Mindsight – *our seventh sense and associated pre-frontal cortex function* [based on Siegel 2010]	2011
D 1	Reflections on foundations for Mindful Living	2011
D 11	Sukha: Paths of Well-Being, PSNS Afferents, and Inner Warmth: *from Duhkha to Sukha*	2017
F 5A	Feeling the Feeling Meditation: I	2019
F 6.1	Introduction to Meditations on Constructive Feelings including Constructive Feeling Meditation I: Calm	2019
F 6.2	Constructive Feeling Meditation 2: Existence	2019
F 6.3/		

7B: Thematically related articles on website *continued*: www.atdynamics.co.uk		
F 6.3	Constructive Feeling Meditation III: Zest	2019
F 7	Meditation on Five Sounds that can Heal the World	2019
F 9	Constructive Feeling Meditation: Inter-Being Part I	Autumn 2022
F 10	Constructive Feeling Meditation on Compassion Part I (after Akong Rinpoche)	Autumn 2022
F 11	Inter Being Part II: A complementary approach to Part I (F11)	2023
F 13	Compassion Part II – Constructive Feeling Meditation Series (Cf F10)	2023

*** *** ***

Glossary /

8. Glossary

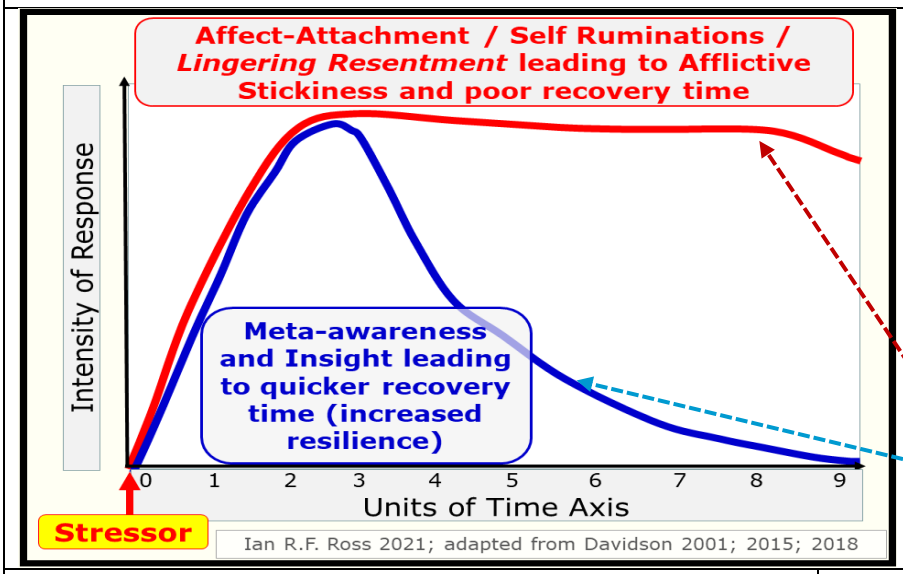
This glossary is quite extensive, in order to make more explicit the links between are daily lives and the three key type of mediation discussed in this paper. There are clear links between attentiveness, being in the present moment, mindfulness and meditation. Some of the glossary entries are from or similar to glossary entries in other website articles. Others are updated or specifically new of this B 27 article. These include:

- Autogenic Training and Meditation Parts I, II, and III
- Lingering Resentment (in connections with Afflictive / Affective Stickiness
- Meditation and Mindfulness Parts I, II, and III

Affective Stickiness Part I (Afflictive Stickiness) Adapted from Glossary of B 26	Affective Stickiness is the term Davidson uses to denote our tendency to dwell on distressing / negative events – and not let go of them [Davidson & Schuyler 2015]. This can result in distressing and unwholesome ruminations, ill-being, and reduced resilience (see Figure 3.3B of B26, p 28]. Of course, not all affects are unwholesome. For this reason, I find the term Afflictive Stickiness more pertinent – and it will be seen that in this article the two terms are used more or less interchangeably. We can also reframe Afflictive Stickiness in terms of the Second Arrow, which can lead to "Lingering Resentment" [Davidson & Schuyler 2015 p 89]. See also: Section 2.4[AS] Afflictive States in the B 26 web article.
Affective Stickiness Part II /	

Affective Stickiness Part II:

- Figure Glossary 1 is taken from Section 3.3B Affective Stickiness (Afflictive Stickiness) of B 26 – to which the reader is referred.



Glossary Figure G1
Source: Figure 3.3B of related web article B 26

Stressors and Recovery Times
(i.e. an indication of Resilience)

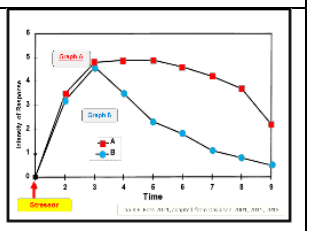
Model based on Davidson [Davidson 2011; 2015; 2018]

Red Graph: long recovery time; poor resilience

Blue Graph: quicker recovery time; good resilience

Comments on Glossary Figure G1

Inset image; the original Davidson 2002 image colour enhanced



Graph A: this person has a prolonged response to the stressor, and this indicates a low resilience to the "slings and arrows" of life [Davidson 2018]. One of the causes of such a prolonged response is the on-going negative ruminations that the stressor produces, such as "Why me?"; "I will get my own back on him / her".
Such thoughts produce distressing Afflictive States, as we become stuck in these distressing ruminations.

- Davidson coins the term Afflictive Stickiness for such states.
- Afflictive Stickiness may be a better term for indicating the damage caused by such states.
  - Lingering resentment [Davidson 2015 – see below] can result in a particularly toxic state for both ourselves and others.
- In Buddhist psychology, Afflictive Stickiness overlaps with the concept of the Second Arrow.

Graph B: this person has a much shorter response to the Stressor, and this indicates good Resilience to the ups and downs of life. This does not imply they have fewer stressors in their lives; rather, that they have good inner resilience, meaning that they recover more quickly from the stressor event. Such inner resilience is fostered by growing meta-awareness.

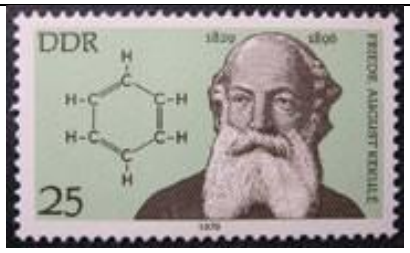
> "If the individual recovers quickly and there is no lingering resentment— affective stickiness—then it is likely that high levels of well-being can persist even in the face of these seemingly inconsistent emotions."
>
> [Davidson and Schuler 2015 p 89]

Autogenic Training and Meditation I /	

Autogenic Training and Meditation I See also Figure 1.1 p 3 See also: Meditation and Mindfulness Part I, II, and III See also D1 on website: Reflections on foundations for Mindful Living	In general terms, we can say that the Standard Exercise sequence embraces two of the forms of mediation discussed in this article: i. Focused Meditation: that is, we focus on the area / areas of the body in question; e.g. arms and legs warm – with the caveat that Focused Meditation is usually associated with focusing on a fixed non-changing object, such as a candle flame or the breath. ii. Open Monitoring Meditation: that is, once we become aware of a distraction / thought intrusion / memory, we gently return to the part of the AT sequence that we were at – or think we were at. Kabat-Zinn's formulation mindfulness is here instructive: Paying attention in a particular way: ❀ on purpose, ❀ in the present moment, and ❀ non-judgementally. Kabat-Zinn 1994; p 4; bullet points added In the light the above, and the central themes of the present article, this suggests the the basic AT Standard Exercise sequence does not sepecifially facilitate the development of compassion for ourselves or others. However, the basic AT sequence, by facilating a move into the Autonomic Ventral Vagal (PSNS) state, facilitates the activation of our nurturing and CARE circuits [Panksepp 1998], and thus moving us towards compassion for oursleves and others. *** *** *** I have found Sue McLennan[21] perspective on AT and Meditation most helpul, and this is outlined in Part II below.
Autogenic Training and Meditation II	Sue McLennan kindly read over a draft copy of the BAS newletter article which was subsequently publised in the British Augogenic Society Summer Newsletter [see Ross 2022 pp 5-13] Below is her response to that draft copy. As I have always said, I see AT as a mindfulness technique in its broadest sense. Calm abiding has more of a feel of being more aware of other thoughts / feelings / images than focused attention although both techniques usually focus on the breath (or another familiar object). Other terms for both of these are samatha, anapana, anapanasati..... in Buddhist meditation practices at least. I would say that AT is perhaps more closely associated with calm OMM (Open Monitoring Meditation) / calm abiding than focused attention. Of course we do focus on particular areas of the body in the SEs (Standard AT exercises - IR) for a short time before moving on to the next area but we are also aware of bodily sensations and thoughts / feelings that arise at the same time. ..... you mention that long term meditators in compassion (metta bhavana) have distinct EEG patterns to non- meditators. I think long term meditators in any

[21] An Autogenic Therapist living in Melrose, the Scottish Borders.

Autogenic Training and Meditation II *continued*	meditation technique would have distinct EEG patterns to non meditators. I remember being plugged into an EEG machine at Charing cross hospital in London in the 1980s when they were doing a study on meditators. Just one other comment re vipassana (Figure 4A on page 25 in this present article B27 article - IR). I haven't practised de Rivera's specific feeling meditation so perhaps I'm not best placed to comment on this. But from my vipassana training and experience, one doesn't "meditate" on recent feelings /upsets***. Rather you observe, with equanimity, whatever arises in the present moment; notice that and then move on to observe whatever else arises. This observation, of course, may include something from the past or something that has recently happened but there's not a sense of staying with that and meditating upon it. My ten day intensive trainings in vipassana involved three days of anapana (watching the breath at the entrance to the nostrils), then moving on to taking one's awareness systematically throughout the body, observing bodily sensations and whatever arises in the mind with complete equanimity (easier said than done to begin with!). Finally in the last few days once one's awareness is honed, one then moves on to observing the movement of pure energy. The concept of annica (constant change) is central to vipassana: to see the truth of impermanence. Sue McLennan – email 13th June 2022 *** I agree with this – certainly if it is a recent major trauma / upset. In this case, both "de-briefing" and meditating on what has happened have the potential to re-traumatise us, and so are contra-indicated [See also Bessel van der Kolk 2014]. On the other hand, if it is more in terms of a "relatively smallish" recent upset, then in my experience Feeling the Feeling Meditation [notated by de Rivera as Feeling Meditation – de Rivera 2018 pp 107-128] can be very helpful, and reduce the chance of the Second Arrow penetrating deeply.
Autogenic Training and Meditation III Feeling the Feeling Meditation [Feeling Meditation de Rivera 2018 pp 107-128 See also: F 5A Feeling the Feeling Meditation I on this website	*Feeling Meditation* [de Rivera 2018] is good example of an Autogenic Practice that is fundamentally different from the Standard Exercise Sequence of Autogenic Training. I have opted to call this "Feeling the Feeling Meditation", as for English speakers this distingishes it more clearly from what I notate as "Constructive Feeling Meditation" – and called by Luis de Rivera: *Meditation on Feelings* [de Rivera 2018 pp 129-145]. Further details of both these forms of Meditation can be found on this website [e.g.: F 5A, F 6.1, F 6.2, F 6.3 and F 7]. However, I feel that the following perspective on Feeling Meditation by de Rivera is apposite here. Feeling meditation is contra-intuitive. Many treaties on psychology empahsise the importance of "being in touch with your feelings," but none explainse how to do it. [83] Even Buddha, in the second chapter of the Satipatthana, [84] commends the "meditation on feelings as feelings" but does not say how to do it. Or perhaps he did say, and the instructions got lost in translation. The truth is that when I explained feeling meditation to the yogi master Alejandro Torrealba, he looked at me seriously and said, "this is pure vipassana." He was right, as usual. For more than twenty years, he has helped

Autogenic Training and Meditation III *continued*	me greatly to wade through the Buddhist writings, and every time I share with him some advanced experience with autogenics, he finds an adequate correspondence within his Tibetan tradition. Feeling meditation is focalized *vipassana*[22]. You do not divert your attention to everyging that comes up, as some people may define mindfulness, but you keep your passive concentration on the dynamics of the feeling. The secret is to notice the blocking strategies. They are completely natural and automatic; they come for the obvious reason that you try to avoid what you do not like. Feeling meditation seems difficult, when, in fact, it is effortless: you have to do nothing. But to do nothing, you have first to accept that you got a feeling, that the feeling is yours, and that you want to own your feeling because it is yours. Accept that you do not like the feeling and that you want to block and to avoid it. Accept all this, and do nothing. This is also passive acceptance. While you do nothing, you will notice that the feeling has a life of its own and is evolving by itself. Anything you do is only a strategy to block the feeling, so do nothing. Just verbalise the name of the feeling; remember, words are handles[23]. Putting a handle on your live-experience will help you to understand it better later on. Later, not now. When you are feeling the feeling, you are only feeling the feeling, do not allow naming the feeling to be an interference. Keep the verbalisation effort to a minimum; if you do not know the name, do not care. It will come; just keep feeling a feeling..... De Rivera 2018 pp 119-120 For footnotes 83 and 84, please see op cit p 213 For further details of Feeling Meditation (Feeling the Feeling Meditation), please refer directly to de Rivera op cit. *** *** *** In accepting the feeling, we can, over time, reframe the feeling so tha we enable ourselves to "befriend it" [Welwood 1983 pp 79-90]. Befriending it allows us to move into our Ventral Vagal PSNS state of nurturing, activating our CARE circuits [Panksepp 1998] and facilitating wholesome social engagment with oursleves.
Benzene Ring Structure and elucidation	The elucidation of the structure of the benzene ring has been attributed to the nineteenth-century German chemist August Kekulé. ○ He claimed that this had come to him while daydreaming; yet some suggest that this claim was false, and that in fact he had stolen the idea from others [Robinson 2010].  Glossary Figure G2 Image of Kekulé and Benzene Ring from Robinson 2010 with thanks
Most organic chemical /	

[22] This is not to imply that vipassana *is* Feeling Meditation. Rather, that Feeling Mediation can be seen to be an aspect of vipassana. Sue McLennan has commented that vipassana: "encompasses feelings, images, thoughts, bodily sensations etc" [email 28-09-2022].

[23] For an exposition of the meaning of handle used in the above passage, please see de Rivera 2018 Chapter 3: Words, Concepts, and Life pp 29-38; especially p 33 and the Mug Metaphor.

Benzene Ring Structure and elucidation *continued*	

Most organic chemical compounds contain loops of six carbon atoms called benzene rings. The nineteenth-century German chemist August Kekulé claimed to have pictured the ring structure of benzene after dreaming of a snake eating its own tail. In Image and Reality, Alan Rocke offers a definitive account of Kekulé's life and the significance of visualization in the development of chemistry. The scientific understanding of benzene was of crucial importance. Isolated as a liquid from compressed coal gas by Michael Faraday in 1825, it was used to make the first synthetic dye, mauveine, from aniline (aminobenzene) in 1856. In 1865, Kekulé proposed that benzene's structure was a hexagonal ring of six tetravalent carbon atoms, each able to form four bonds: one to a hydrogen atom and the others to adjacent carbon atoms. This concept — foreseen by him as "an inexhaustible treasure-trove" — was rapidly accepted by organic chemists because it predicted the existence of many benzene derivatives that were quickly synthesized in the laboratory.

Some historians have suggested that Kekulé stole the credit for discovering benzene's structure from his contemporaries, notably the Scottish chemist Archibald Couper and Austrian scientist Josef Loschmidt, by fabricating a story of two daydreams he had about whirling carbon atoms forming chains, "twisting and turning like snakes". In a 1985 paper, Rocke offered a brilliant refutation of these allegations. Using archival evidence, he argued that the concept of carbon tetravalency and the benzene ring developed cautiously and logically in Kekulé's mind during 1854–65. The two daydreams were integral episodes:

- the first in the summer of 1855 on top of a London omnibus,
- the second in 1862 in his apartment in Ghent, Belgium, while Kekulé was writing a pioneering chemistry textbook.

Extended quote from
Robinson 2010

In any event, the concept that the image of the ring came to him in these daydreamings – or altered states of consciousness – supports the idea that breakthroughs in solving problems can come from non left brain activity; rather, the insight comes from right brain activity when we are, as it were, daydreaming, going for a walk, or looking out of the window and being.

Default Mode /

Default Mode Network I See also Section 3.2.3: DMN and Creativity ……including Figure 3.2.3A p 19	This is an area of the brain that is active when we are not actively engaged in any mental task or cognitive activity. This includes daydreaming; yet daydreaming can lead to creative insights (see Benzene Ring above). The areas of the brain involved include the medial Pre-Frontal Cortex (mPFC) and the Posterior Cingulate Cortex (PCC), which is a node that connects to the limbic system. In an original paper on the DMN, Raichle et al say: We posit that when an individual is awake and alert and yet not actively engaged in an attention-demanding task, a default state of brain activity exists that involves, among other areas, the MPFC and the posterior cingulate and precuneus. Information broadly arising in the external and internal milieu is gathered and evaluated. When focused attention is required, particularly if this activity is novel, activity within these areas may be attenuated. This attenuation in activity reflects a necessary reduction in resources devoted to general information gathering and evaluation. The MPFC with the posterior cingulate and medial parietal cortices may well be the ''sentinels'' to which William James referred (see ref. 48, p. 73), which, ''when beams of light move over them, cry 'who goes there' and call the fovea to the spot. Most parts of the skin do but perform the same office for the fingertips.'' Raichle et al 2001 p 682
Default Mode Network II Based on Utevsky et al 2014	There are many networks in the brain, and recently much focus has been on one of these: the Default Mode Network. Utevsky et al state: ○ "The human brain at rest, when mind-wandering and ruminating, shows distinct and reliable patterns of connectivity among widely separated brain regions…… ○ "One network that has been of particular interest is the default-mode network (DMN), comprising the posterior cingulate cortex (PCC) and precuneus, medial prefrontal cortex, and bilateral temporoparietal junction. Utevsky et al 2014 The DMN is wonderful to the extent that we all need to rest – and allow our minds to wander – say when walking in town or in the country; and this can lead to creativity and new insights [cf Ross 2010[E4] and "Trance Like States" – pp 97-136] . However, it can be disastrous for our health when it leads to distressing and downwardly spiralling ruminations (ruinations)– resulting in Afflictive Stickiness.
Default Mode Network III	Research indicates that there is increased connectivity between certain areas of the brain and the DMN in creative activities, and in experienced meditators. See Figures 3.2.3A and 3.2.3B on page 19
Dissociation: Knowing and Not Knowing /	

Dissociation: Knowing and Not Knowing	Preamble: this B 27 article mainly focuses on three components of Meditation that facilitate well-being. Approaches to trauma include meditation and body therapies such as dance. However, we need at the same time to be aware of the severe problems that may arise as a result of early loss of attachment. For this reason this entry below on dissociation is included, taken direct from van der Kolk. It is hope that this will encourage readers to buy his book .

Bessel van der Kolk on Dissociation: Knowing and not knowing

Lyons-Ruth was particularly interested in the phenomenon of dissociation, which is manifested in feeling lost, overwhelmed, abandoned, and disconnected from the world and in seeing oneself as unloved, empty, helpless, trapped and weighed down. She found a "striking and unexpected" relationship between maternal disengagement and misattunement during the first two years of life and dissociative symptoms in early adulthood. Lyons-Ruth concludes that infants who are not truly seen and known by their mothers are at high risk to grow into adolescents who are "unable to know and to see."

Infants who lived in secure relationships learn to communicate not only their frustration and distress but also their emerging selves – their interests, preferences, and goals. Receiving a sympathetic response cushions infants (and adults) against extreme levels of frightened arousal. But if your caregivers ignore your needs, or resent your very existence, you learn to anticipate rejection and withdrawal. You cope as well as you can by blocking out your mother's hostility or neglect and act as if it doesn't matter, but your body is likely to remain in a state of high alert[24], prepared to ward off blows, deprivation, or abandonment. Dissociation means simultaneously knowing and not knowing.

Bowlby wrote: "what cannot be communicated to the (m)other cannot be communicated to the self" [Ainsworth & Bowlby 1989 / 1991] . If you cannot tolerate what you know or feel what you feel, the only option is denial and dissociation. Maybe the most devastating long-term effect of this shutdown is not feeling real inside, a condition we saw in the kids in the children's clinic and that we see in the children and adults who come to the trauma centre. When you don't feel real nothing matters, which makes it impossible to protect yourself from danger. Or you may resort to extremes in an effort to feel something – even cutting yourself with a razor blade or getting into fist fights with strangers.

Karlen's* research showed that dissociation is learned early: later abuse or other traumas did not account for dissociative symptoms in young adults. Abuse and trauma accounted for many other problems, but not for chronic dissociation or aggression against self. The critical underlying issue was that these patients didn't know how to feel safe. Lack of safety within the early caregiving relationship led to an impaired sense of inner reality, excessive cleaning, and self-damaging behaviour. Poverty, single parenthood, or maternal psychiatric symptoms did not predict these symptoms.

This does not imply that child abuse is irrelevant, but that the quality of early caring is critically important in preventing mental health problems, independent of other traumas. For that reason treatment needs to address not only the imprints of specific traumatic events but also the *consequences* of not having been mirrored, attuned to, and given consistent care and affection: *dissociation and loss of self-regulation*.

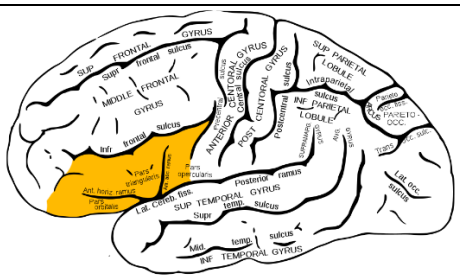
Bessel van der Kolk 2014 pp 121-122
Italics and underlining added by IR

*Karlen is referring to Karlen Lyons-Ruth

Dual /	

[24] i.e. the body is keeping the score

Dual Concentration	"The specific meditation method of autogenics. Consists of passive concentration in the same experience by two paths: i. the direct perception of a somatic sensation and ii. the concurrent verbalization of the somato sensory experience that is taking place." De Rivera 2018 p 37 The direct experience of the somatic sensation is subjectively realised thanks to the autonomic afferents that convey this information from the body to our awareness centres in the brain.
Habit Energy See also glossary of D11 for a fuller discussion on Habit Energies	As we grow up, we take on certain patterns of behaviour and attitudes from our parents, teachers, and ancestors. Some of these may be helpful, some may be neutral, and others may be dysfunctional. In Buddhist psychology, these are termed Habit Energies, and overlap with Procedural Learned Tendencies and Complexes. ○ Habit energies influence us at an unconscious level and so lead to volitional actions that may later perplex us – that is, we can be driven by these unconscious forces. ○ Complexes, in the Jungian sense, are forms of habit energies. These can be passed down to us by our ancestors, and in turn we can pass down habit energies to our offspring. These may manifest in terms of Procedural Learned Tendencies [Ogden 2009]. Negative habit energies can very easily be transmitted to our children, starting when the baby is in the womb. Hanh suggests pre-marriage classes to reduce such negative transmission [Hanh 2001-[TAB]; p 32].
Inter-Being	A term coined by Thich Nhat Hanh [Hanh 1998 e.g., pp 24-27; 2012 pp 55-61] ❁ ' "Interbeing" is a word that is not in the dictionary yet, but if we combine the prefix "inter" with the verb "to be", we have a new verb, "inter-be". If we look into this sheet of paper even more deeply, we can see the sunshine in it. If the sunshine is not there, the forest cannot grow. In fact, nothing can grow. And so, we know that the sunshine is also in this sheet of paper. The paper and the sun-shine inter-are.' Hanh 2012 pp 55-56 In the same way as the sheet of paper, if we look deeply into each human being, we see that our existence and being is interdependent and inter-related to everything: the cosmos, our sun, the moon, mother earth, our ancestors, the clouds, the air, and ground of our being. ○ The concept of inter-being is fundamental to a wholesome psychology, society, and world. The realisation of the inter-relatedness of all things acts as an anti-dote to the negative / toxic mind states. A modern realisation of inter-being can be found in the Systems view of life [Capra & Luisi 2016].
Inferior Frontal Gyrus	"The inferior frontal gyrus (IFG), (gyrus frontalis inferior), is ○ the lowest positioned gyrus of the frontal gyri, ○ the frontal lobe, and is part of the prefrontal cortex. The inferior frontal gyrus contains Broca's area, which is involved in language processing and speech production." Extract from Wikipedia The area includes this part of the surface of the brain. The Left IFG shows increased connectivity with the Default Mode Network in those with increased creativity [Beaty et al 2014].



Glossary Figure G3
Left Inferior frontal gyrus indicated in yellow-orange
Source: https://en.wikipedia.org/wiki/Inferior_frontal_gyrus

Jen /

Jen	In ancient China, there was a quality that was considered higher than any other; it was not, for example, courage, or beauty, or perseverance. It was Jen. This quality was known as Jen, which can perhaps best be translated as human-heartedness (Watts 1995; page 25). We can get more in touch with the sacred and human-heartedness within each of us by mental training which facilitates our CARE / nurturing circuits [Panksepp 1998], and activates our positive emotions through the increased activity of our Ventral Vagal para-sympathetic nervous system afferents [Porges 2011].
Left Dorso Lateral Pre Frontal Cortex Based in Turnbull 2019	Recent research suggests that the Left Dorso Lateral PFC may have an important role when we are daydreaming, during which it shuts out external inputs if safe to do so – and allows reflection on more personal goals, which, it is suggested, may facilitate our creativity mode. See Section 3.2.3 above.

Abstract from Turnbull Paper:

- When environments lack compelling goals, humans often let their minds wander to thoughts with greater personal relevance; however, we currently do not understand how this context-dependent prioritisation process operates.
- Dorsolateral prefrontal cortex (DLPFC) maintains goal representations in a context-dependent manner.
- Here, we show this region is involved in prioritising off-task thought in an analogous way. In a whole brain analysis, we established that neural activity in (the Left) DLPFC is high both when 'on-task' under demanding conditions and 'off-task' in a non-demanding task.
- Furthermore, individuals who increase off-task thought when external demands decrease, show lower correlation between neural signals linked to external tasks and lateral regions of the DMN within DLPFC, as well as less cortical grey matter in regions sensitive to these external task relevant signals.
- We conclude humans prioritise daydreaming when environmental demands decrease by aligning cognition with their personal goals using DLPFC.

Turnbull et al 2019

Lingering Resentment Adapted from Glossary of B 26	A term used by Davidson and Schuyler 2015 that is associated with Affective Stickiness [Davidson & Schuyler 2015]. Lingering Resentment can be associated with feelings of hatred and ill-will towards others, and acts as a hindrance to recovery from stressors. Negative and downwardly spiralling ruminations may at times have more than a little lingering resentment. Lingering resentment is axiomatically associated with Autonomic States of "mobilisation in the context of fear", that is, flight /fight SNS dynamics or "immobilisation in the context of fear", that is, Life Threat / not feeling good enough dynamics of the Dorsal Vagal PSNS. See also: Affective Stickiness above and the accompanying Glossary Figure 1.
Lingering Resentment, Afflictive Stickiness; and "once bitten twice shy"	Annie Sturgeon, and Autogenic Therapist, while proofreading this article, reflected back to me that perhaps lingering resentment can at times be positive and lead to learning, as in the expression "once bitten twice shy". This is a good question, and set me thinking. What follows below is an outline of Annie's perspective, followed by some of my reflections on this. This has resulted in this entry being one of the longer ones in the glossary. Annie says:

Lingering Resentment, Afflictive Stickiness; and "once bitten twice shy" *continued*

Afflictive Stickiness (AS) in relation to one incident / event in life does not imply that a person will exhibit AS in all, or any other, aspects of their experience. Afflictive Stickiness is not all-encompassing.

Lingering resentment relating to one event or relationship can seem to help some people to:

a) show empathy towards others in similar situations, and
b) cope with similar events / relationships that occur for them in the future

They are … learning by experience and developing resilience.

Even though these individuals are effectively 'stuck', i.e. they are unable to leave that particular issue behind, it does not necessarily have a negative effect on them. In fact, I believe that it can aid their resilience. They recognize the past experience and retain the negative feelings associated with it, consciously or subconsciously, which can provide a key/switch/barrier to prevent lingering resentment building up in association with later, similar events because, if recognized, they can be avoided.

- Once bitten twice shy.

For example; if a person develops a negative psychic connection with another, that has given rise to lingering resentment that seems, or is, impossible to shift – say because the person does not want to shift it, for whatever reason – they can use the experience for good, in that they can 'handle' similar relationships much better (as, perhaps, nothing/ no-one can be as bad as their experience with X).

By remaining alert, similar future stressors can be handled more easily. The 'second arrow' in subsequent, similar situations can thus be deflected/ avoided.

Although it does mean that lingering resentment continues in relation to the original event/relationship… resolving this may not have beneficial consequences if/when the person encounters similar events in the future. Because their raw emotional response will be diluted, they leave themselves open to suffering in the same way, again.

Layout adapted and bullet point added by IR

It seems to me that much of the above discussion reflects a type of mindfulness that can occur if we are aware of lingering resentment; and once bitten twice shy is certainly an important form of learning. If we accept this learning with gratitude, this I think will itself lead to a reduction in any lingering resentment. Gratitude has itself been shown to facilitate well-being [Voci et al 2019]. It would have been wonderful to discuss this matter with Annie and Thich Nhat Hanh in person!

Some further reflections:

1) Lingering Resentment is, per se, an uncomfortable state to be in.
2) A key element in lingering resentment, or the arising of lingering resentment, is that we do not feel safe; that is, we are not in the Ventral Vagal (PSNS) state of wholesome social engagement. This implies that lingering resentment may be associated with either:
   - "Mobilisation in the context of fear"; i.e. hypervigilant states of the SNS and so the neurophysiology of the flight / fight state which can be associated with feelings of, for example: envy, jealousy, anger, and aggression in various combinations, or:
   - "Immobilisation in the context of fear"; i.e. life threat states of the Dorsal Vagal parasympathetic nervous system, when we may not feel good enough, have low self-esteem, or wish to go and "hide in a cave".
3) The Second Arrow can arise if we are in either of the above autonomic states.
4) From these perspectives, even if lingering resentment can lead to the learning of "once bitten, twice shy", there remains, it seems to me, an inner disquiet.
   - We have not, as it were, befriended the distressing feeling [see also Welwood 1984] : and if we have not befriended it, then I feel there is an ongoing problem remaining.
5) In an attempt to clarify what I am saying here, let me give an example of a real situation when Bernie – my wife – and I were on holiday in Doune, Knoydart.

Lingering Resentment, Afflictive Stickiness; and "once bitten twice shy" *continued*

At one of our evening meals, we were joined by a couple from a sailing boat anchoring in the small harbour. At one point in the meal, Bernie leaned over and removed a hair attached to my beard; I felt a little put out, and then she repeated this manoeuvre a few minutes later. I was aware that irritation at her action was arising, and I felt a bit "hen pecked"; yet did not say anything as I did not want to upset the ambience with the couple from the sailing boat. Later that evening, after the meal, I mentioned this matter to Bernie, and then we worked through it to return to equilibrium and harmony.

So why am I raising this? Well, I think it is instructive – at least for me.

i. My initial irritation arose partly because at that moment I did not feel comfortable; I did not feel safe. This means I was in a non Ventral Vagal State; meaning that there was activation of "mobilisation with fear" or "immobilisation with fear".
ii. As a result, I was left with some (lingering) resentment, and a feeling of impotence.
    - Some of this is to do with ego: and not feeling good at the thought of others seeing me as "hen pecked".
iii. I was blind to the possibility that this was a gentle action from Bernie based on love and a feeling of nurturing me – in other words, coming from a Ventral Vagal State within her.
iv. I was in that moment blinded from the wisdom of "befriending" [Welwood 1983 pp 79-90] the distressing feelings I had.
    - Befriending distressing feeling shifts our state into the Ventral Vagal nurturing and wholesome social engagement with ourselves and so the other.

If we are able to befriend the emotions behind the lingering resentment, then I think we will more easily be able to return to:

- Inner peace
- Inner stillness

Befriending distressing emotions enables us to return to our Safe Ventral Vagal State, and reflect on what has happened with greater equanimity (see also Seven Factors of Awakening). The lingering resentment is, of course, usually caused by the actions / words of someone else . Most people do not set out to be unkind to others; so if what they have said is unkind or distressing, then it is probable that at that moment they were in a hypervigilant (flight / fight) or "life threat" Dorsal Vagal State [Porges 2011]

Meditation /	

Meditation and Mindfulness Part I	I have found this overview by Luis de Rivera of these concepts as particularly helpful, and hence the extended quote.

The human experience of mindfulness and meditation exists, but it is hard to put into words. Some authors use the words "meditation" and "mindfulness" interchangeably to translate the Buddhist word *sati*[2], whereas others use them to bring another technical term, *shamata*[3]. In truth, *sati* and *shamata* are untranslatable words, because the experience they denote does not exist in Western culture. This may explain the current terminological confusion, in which the same name applies to different experiences, the same experience receives different names, and the same word designates a mental state and the technique to achieve it.

Communicating the experience to you is more important than linguistic disquisitions, but some definitions are necessary. As a technical term, I recommend defining *Meditation* as:

- a mental activity, different from reasoning and imagination, which develops with specific training and produces effects that can be described and compared objectively.

The practice of meditation consists of keeping sustained attention on an object, image, sound, concept, colour or experience, without expecting any particular result.

This special way of concentrating attention, without purpose or finality, is what defines meditation, differentiating it from other mental activities. *Mindfulness* is

- the attentional state that develops with meditation and also the particular way of using attention in meditation.

Meditation training is thus training in mindfulness.

[2] for this de Rivera reference, please see de Rivera 1018 p 199
[3] for this de Rivera reference, please see de Rivera 1018 p 199

De Rivera 2018 p 13
Bullet points and insets added

Meditation and Mindfulness Part II	Mindfulness is a concept that has been adopted in the west, and some use it interchangeably with Meditation [e.g. Gelong Thubten (see: A Monk's Guide to Happiness - with Gelong Thubten - YouTube)]

In practical terms, when you do even a short session of meditation, it is good to actively create a compassionate intention[25].... through spending a few moments mentally establishing the motivation for your meditation……. You can think, "I am doing this practice not only for myself, but also for others. Through this training, may I eventually be able to help others, in the deepest way possible." Creating this aspiration through your thinking is incredibly powerful, as it sets the tone for the meditation, connects you with a deeper reason for meditating and invests its power in the most beneficial way. It gives you a plan, a purpose, transforming helpless feelings of empathy into the dynamic path of compassion training.

Gelong Thubten 2019 pp 173-174

[25] There are specific exercises that help us to develop Compassion. See, for example F10 on this website: "Constructive Feeling Meditation on Compassion" – based on an approach by Akong Rinpoche – and planned for Autumn 2022.

Meditation and Mindfulness Part III Based on the approach of Jon Kabat-Zinn 1990 / 2004 (J K-Z)	A further insightful perspective on Mindfulness / Meditation comes from the now classic "Full Catastrophe Living[26]" by Kabat-Zinn [1990 / 2004]. Jon Kabat-Zinn created the Mindfulness based Stress Reduction (MBSR) Programme at Massachusetts Medical Centre back in 1979. The title of the above book comes from the concept that all of us have the potential to live a full life even after a major catastrophe, such as the death of a loved one, severe trauma through e.g. war or childhood abuse, cancer or heart disease……

In order to be accepted for the MBSR course, the individual has to "make a major personal commitment to spend some time each day practising ……'just being' ". fundamental to this approach is the idea of practising *non doing*, or *practising being*. In other words, moving away from the doing mode of being very active – physically or mentally.

- "This kind of learning involves settling into moments of being and cultivating awareness" [J K-Z 2004 p 20]

Mindfulness embraces being in the moment: and being present to each moment as best we can. This overlaps with vivencia, or "live experience" [de Rivera 2018 p 29]. This is modulated through the Right Hemisphere, and not the Left Hemisphere. The Left Hemisphere is closely linked to analytical type thinking (and we could add *downplaying the importance of vivencia, poetry, and creativity*). [See also McGilchrist 2009, 2021A and 2021B].

Kabat-Zinn goes on to say (writing back in 1990 / 2004):

> Until recently the very word meditation tended to evoke raised eyebrows and thoughts about mysticism and hocus-pocus in many people. In part, that was because people did not understand that meditation is really about paying attention. This is now more widely known. And since paying attention is something that everybody does, at least occasionally, meditation is not as foreign or irrelevant to our life experience as we might once have thought.
>
> However, when we start paying attention a little more closely to how our mind actually works, as we do when we mediate, we are likely to find that much of the time our mind is more in the past or the future than it is in the present. Consequently in any moment we may be only partially aware of what is actually occurring in the present. We can miss many of the moments we have to live because we are not fully here for them. This is true not just while we are meditating. Unawareness can dominate the mind in any moment and consequently, it can affect everything we do. We may find that much of the time ware are really on "automatic pilot", functioning mechanically, without being fully aware of what we are doing or experiencing. It's as if we are not really at home a lot of the time or, put another way, only half-awake.
>
> Kabat-Zinn 1990 / 2004 p 21

Kabat-Zinn's statement "we are likely to find that much of the time our mind is more in the past or the future that it is in the present" echoes Hanh's warning to us of "pursuing the past or losing ourselves in the future" [Hanh 1990; e.g. p 6 and the whole book].

Jon Kabat-Zinn goes on to say that mindfulness is not just a matter of live experiencing (vivencia-ing) a sunset (or a bird singing) ……

> …….. When unawareness dominates the mind, all our decisions and actions are affected by it. Unawareness can keep us from being in touch with our body, its signals and messages. This in turn can create many physical problems for us, problems we don't even know we are generating ourselves. And living in a chronic state of unawareness can cause us to miss much of what is most beautiful and meaningful in our lives…….
>
> Kabat-Zinn 1990 / 2004 pp 24-25

[26] Initially I was put off by this title because I did not understand it. However, what Jon Kabat-Zinn is essentially saying is that even if we have had / experienced a catastrophe in our lives, we can still live a full life; this may well be different from how we previously lived – yet it can still be just as fulfilling and lead to flourishing.

Meditation and Mindfulness Part III *continued*

It seems to me that one of the great contributions of Jon Kabat-Zinn has been to emphasise that mindfulness and meditation are not simply something that we do once or twice a day; rather, that we can, over time, allow our whole life to become mindful and meditative. A key element of this to be aware of the Present Moment [Hanh 1993], and this can embrace a sense of wonder [see F 7: Meditation on Five Sounds that can Heal the World on website]. While meditating yesterday evening, I had my eyes open and was vivencially absorbed in the branches of a willow and other trees blowing gently in the breeze – in a dancing way. The cosmos has an energy and vitality that at times embraces the dance…….

As indicated, Kabat-Zinn was writing the above nearly two decades ago. There is now a much greater awareness of the benefits of mindfulness and meditative approaches. Also, as discussed in this article, there is now greater recognition that meditative approaches go back millennia, and that it is important that we honour these ancient traditions, rather than be under the illusion that these developments are the result of a unique western approach of recent decades. Luis de Rivera 2018; Ricard, Lutz and Davidson 2014; Davidson 2022; Goleman & Davidson 2017, 2018; and indeed Kabat Zinn himself – op cit pp 364-365 – have all recognised and acknowledged our debt to these ancient and life enhancing traditions.

Thich Nhat Hanh provides a heartfelt preface to Full Catastrophe Living:

> This very readable and practical book will be helpful in many ways. I believe many people will profit from it. Reading it, you will see that meditation is something that deals with our daily life. The book can be described as a door opening both on the Dharma (from the side of the world) and on the world (from the side of the Dharma). When the Dharma is really taking care of the problems of life, it is true Dharma. And this is what I most appreciate about the book. I thank the author for having written it.
>
> Thich Nhat Hanh
> Plum Village, France
> In: Kabat Zinn op cit p xvii

The essence of mindfulness and meditation is further captured in the following:

> If we listen to the mind of silence,
> every bird song and every
> whispering of the pine branches
> in the wind
> will speak to us.
> Hanh 2015 pp 108

I am greatly indebted to Jon Kabat-Zinn for this entrance in the glossary – and warmly recommend his book for further reading in terms of both our personal and professional development.

Meta-awareness /	

Meta-awareness I (meta-attention)	"Being able to track the quality of one's own awareness – for example, noticing when your mind wanders or you've made a mistake." Lapate et al 2016
Meta-awareness II Adapted from Glossary of B 26	A complementary perspective on meta-awareness is given by Dahl et al. ○ ".....An awareness of the processes of conscious experience, such as recognition that one is expressing an emotion, a thought, or a sensory perception as it occurs in real time. ○ It "is involved when one suddenly recognises an emotion before it provokes a reaction, for example, and also when one suddenly realises that one has been 'on autopilot' while engaged in a daily routine." Dahl, Wilson-Mendenhall, and Davidson 2020 p 2
Mindfulness embraces both aspects of meta-awareness	

Mind wandering

My brother Michael commented on proof reading: "I think it might be worth explicitly distinguishing mind wandering in meditation and mind wandering in other facets of life." This is a good suggestion, and has helped to clarify matters in my own mind.

1)Mind wandering in Meditation

We can use mind wandering during meditation as one of the ways to improve our attention. Minds tend to wander during meditation. That in itself is not a problem. The important thing is that once we become aware (realise) that our mind has wandered, we gently focus it back on the area of attention that we have wandered from.

- We do this in a gentle way, without judgement, and with the awareness that this is what our minds tend to do during meditation.
- Should we become irritated that our mind has wandered, then again this can become part of the practice. For example, we can silently say to ourselves: "irritation is arising". This is a form of Affect Labelling [Lieberman 2007; Creswell 2007]; or, in Siegel's term: "naming and taming" [Siegel 2010B e.g. pp 116, and 246]. That is, by naming the emotion "sadness", or "sadness is here", we are acknowledging the feeling (i.e. not denying it); and this naming of it reduces amygdala activity – e.g. regarding fear or inner distress.

2) Mind wandering morphing with negative ruminations

When we are distressed, we can very easily go into negative ruminations, which is a type of mind wandering, and tends to make matters worse. See also the second arrow. This overlaps with Thich Nhat Hanh's concept of pursuing the past or losing ourself in the future [Hanh 1990].

- Such negative ruminations are generally associated with the SNS state (of feeling in danger), or the Dorsal Vagal of Life Threat / not feeling "good enough [Porges 2011].

3) Mind wandering in creativity: Mind wandering as part of a creative process (see also Section 3.2.4 and 3.2.**5)** .

This aspect is discussed in the main text in terms of, for example the realisation by August Kekulé of the basic structure of the benzene ring. (See also: Benzene Ring Structure).
These creative processes, including insights, are, in general terms, the domain of the Right Hemisphere which is not restricted by the analytical and linear mode of the Left Hemisphere.

Mind wandering *continued*

These matters are discussed extensively by McGilchrist 2021A, for example: pp 254-280.

Intuition could also be thought of as the synthesis of experience with unconscious reasoning on the basis of that experience. The left hemisphere will have its intuitions, but they are likely to be misguided. The right hemisphere is more likely to be a source of good intuitions than the left because *it is*

i. more in touch with the autobiographical memory and personal experience[52];
ii. more in touch with the body and emotions[53];
iii. better able to regulate emotions[54]; and
iv. better able to stand apart from bias[55].

So, to that extent, intuitive insight can be identified with the right hemisphere.

McGilchrist 2021A Volume I: p 256

Layout of numbering changed by IR

Selection of the References [51-54] by McGilchrist given below:

[51]: e.g. Holland & Kensinger 2010
[52]: e.g. Panksepp 1998
[53]: e.g. Roberts, Beer, Werner et al 2004
[54]: e.g. Tsujii, Masuda, Akiyama et al 2010

Luthe considered that part of the power of Autogenic Training is because the process allows us, unconsciously, to break away from the dominance of the Left Hemisphere, and de Rivera puts this in terms of the Second Autogenic Switch [de Rivera 2018 [pp 38, 60, 70, 260]). Separately, de Rivera's research indicates increased Right Hemisphere activity during an Autogenic Session [de Rivera 2018 p 70; 160-172; see also web article: B 24: Autogenic Switches and Well-Being on website.

Polyvagal Theory/	

Polyvagal Theory

Adapted from Glossary of B 22 and B 26 on web.

Polyvagal Theory *continued*

For an introduction / summary of hybrid autonomic states, such as PLAY, please see the more detailed glossary entry in B 22 on website.

The Polyvagal Theory has been developed by Porges over the last four decades or so. In essence, it can be described in terms of three components of the Autonomic Nervous System.

1. **The Primitive and** ***unmyelinated*** **(Dorsal Vagal) PSNS** dating back to the evolution of vertebrates. This is the system that operates unconsciously when an organism is severely threatened and "feigns death" / freezes or flops, and is associated with behaviour shutdown, thus acting as a primordial survival system.
   - It is in essence a Pan-Immobilisation System when under severe threat (i.e. Life Threat), and sometimes is called Fear Paralysis [Levine 2010].
   - The primitive PSNS evolved in evolution in the context of Immobilisation associated with unconsciously perceived (neurocepted) life threat.
   - This system worked well for reptiles, but is potentially lethal for mammals – as the shutting down of systems can threaten the integrity of the mammalian brain which is very sensitive to reductions in oxygen supply.

   Important caveat re Dorsal Vagal ancient PSNS when no life threat.
   When there is no life threat, then this ancient system plays a crucial role to support health:
   - "The phylogenetically older unmyelinated vagal motor pathways are shared with most vertebrates and, in mammals when not recruited as a defence system, function to support health, growth, and restoration via neural regulation of subdiaphragmatic organs (i.e. internal organs below the diaphragm).
     Geller & Porges 2014 p 182

2. **The SNS flight / fight system**. This is in essence the Mobilisation system – e.g. when we are in danger.
   - Mobilisation with fear – for either fight or flight.

3. **The Myelinated (Ventral Vagal) PSNS** that evolved in mammals and is fundamental to Social Engagement / Social Communication. This involves, for example:
   - Facial Expression
   - Listening
   - Vocalisation
     - Myelin covers nerves and allows the neuronal messages to be transmitted much faster than is the case with unmyelinated nerves.

The above description is fine in that it reflects the technical names for these aspects of the Autonomic Nervous System. However, when introducing these concepts to students on an Autogenic Training course, it can be confusing. I have found that the following ABC version is very helpful, and allows for a much easier grasp of what state we (and others) are in at any one moment. This myelinated vagal system can only operate properly in situations where we are feeling safe.

In terms of wholesome human interactions, it is perhaps more helpful to describe these three in the following order:

A. When we feel safe, our Social Engagement System will be engaged in a wholesome way, and this is underpinned with Ventral Vagal (VV) dominance.
B. In situations of Danger, the SNS takes over in terms of mobility in the context of FEAR (or anger / RAGE).
C. In Life threat situations, we go into the collapse/ flop / appearing dead response, which is the classic DV response of vertebrates and mammals. However, previous life threat situations can be activated in the here and now through memory or a present moment experience that triggers that previous emotional state. This can then lead to severe on-going autonomic dysfunction associated with, for example, social withdrawal and / or depression.

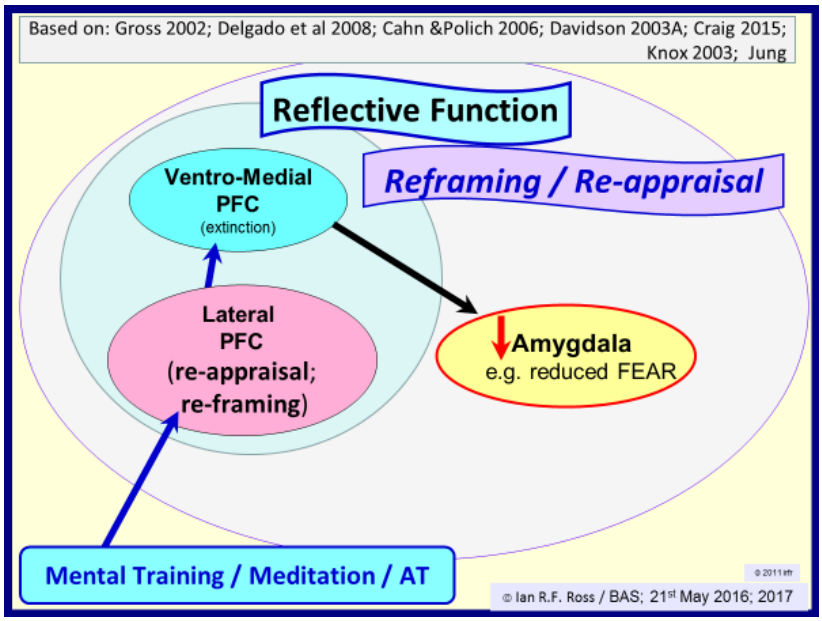
Reflective Function	This section is adapted from the Glossary of E-03 on website: ❀ Look at the Cypress Tree – *Autonomic Afferents and Well-Being* Based on the 2016 British Autogenic Society Annual Memorial Lecture

The Reflective modality of humans has been a crucial part of many spiritual traditions, going back millenia. Jung's approach to psychology and individuation is based on reflection, and Knox highlights the importance of this approach for our well-being in a chapter of one of her books [Knox 2003 Chapter 6: "The Reflective Function"].

Mental Training facilitates interoceptive awareness (see E-O3 on website) and the Reflective Function. If our SNS afferents are bombarding our Right Anterior Insular Cortex, we will not be able to reflect well – partly because our amygdala will be aroused (for example, with FEAR / RAGE).

Meditative type practices have been shown to activate the Lateral Pre-Frontal Cortex, and can then have an important effect on down-regulating various Amygdala functions associated with flight and fight; this is done via the Ventro-medial Pre-Frontal Cortex, as illlustrated in the Figure opposite (G4-A).

Note that such meditative practices facilitate down-regulating certain (traumatic) memories (in psychology called extinction) and re-appraisal / reframing [Gross 2002; Delgado et al 2008; Cahn &Polich 2006; Davidson 2003A].



Glossary Figure G4-A
Pathways of Reappraisal and the Reflective Function
See also B2 on website: Reframing, Reappraisal and Well-Being

The Refective function facilitates these pathways and so facilitatates re-appraisal, insight and Einfall – "a fallen-from-heaven"; see the Four Functions, Ross 2010: Glossary p 277

Further Reflections on Reflective Function

Our Reflective Function is also helpful in developing our own internal ethic, which itself depends on theory of mind and our CARE circuits [Panksepp 1998].
See also Glossary of E 03: Pre-Frontal Cortex Part A and B.

As our bodies become settled:

- ❀ we become settled; our minds become settled.
- ❀ Ventral Vagal PSNS afferent activity increases. "All in the periphery is quiet" [Wallnöfer 2000].
- ❀ In this state, our mind can truly reflect reality,
  - just as a still lake reflects mountains, clouds and trees without distortion, and
  - our reflective function can develop optimally.

If our bodies are not settled, our minds are not settled; SNS afferents predominate. Our minds have become as the surface of a perturbed lake – and reflections are distorted. Our reflective function at such times is becoming kaput. In this situation, an Autogenic sequence will help settle the body.

Thich Nhat /

Thich Nhat Hanh, in a wonderful book "*A pebble in Your Pocket: Mindful stories for children and Grown-up*", says:

> ….. From time to time, you see a lake where the water is so still that it reflects exactly what is there. It's so still it can reflect the blue sky, the white clouds, the mountains, the trees……. When your mind is calm, it reflects things as they are. You aren't the victim of wrong perceptions. When your mind is disturbed by craving, anger, or jealousy, you perceive things wrongly. Wrong perceptions bring us a lot of anger, fear, violence, and push us to do or say things that will destroy everything. The (meditative) practice helps you restore your calm and peace, represented by still water.
>
> Breathing in, I see myself as still water.
> Breathing out, I reflect things as they truly are.
>
> Hanh 2001/2010 p 106

Meditative type practice can help us move away from wrong perceptions, and towards our Authentic Self.

*** *** ***

Reflective Function and Trauma Thanks to Bessel van de Kolk for this new entry in Glossary. van de Kolk 2019 van de Kolk 2014	Talking psychotherapy can only work if we have the capacity to reflect on what is going on in the therapy. Following trauma, and especially Post Traumatic Stress Disorder, our Prefrontal Cortex (PFC) is knocked out (goes "offline"); this means we no longer have the capacity to self-reflect. So talking therapies will not work. In fact they may make things worse as the talking about the trauma can activate the original amygdala activity at the time of the trauma, and so the original events and feelings become alive in us as though they are happening in this very moment.

This has long been a problem for therapists specialising in trauma. Prozac was found to help, as Bessel van der Kolk explains:

> I did not know that the Rorschach was not used by psychologists so we do those and we do pre and post, and what we find is people who take Prozac, the capacity to reflect on emotions goes up. And so that is in my mind, this is the opening of people being able to do psychotherapy for really traumatized people because Prozac is one of the first things that allows them to reflect upon themselves.
>
> van der Kolk, 2019 transcript

Those with a history of severe trauma (PTSD[27]) are in many ways living in the past, and a sharp sound or smell, for example, can bring back the original body state during the trauma, as if it were happening now.
Yet such people are often cut off from their present moment bodily sensations. In view of this, non-verbal approaches are initially crucial. There are two basic approaches [van de Kolk 2014 pp 62-65]:

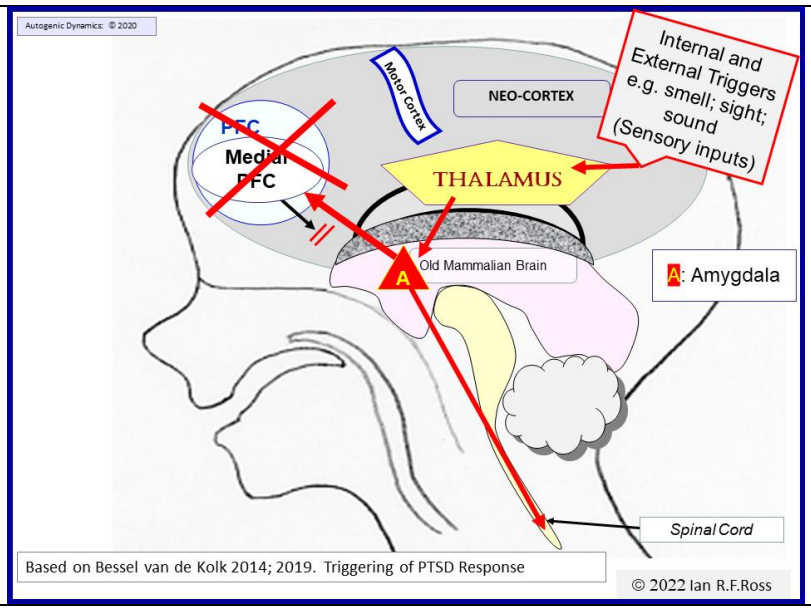
I. Bottom up, in which we can become aware of what is going on in our bodies. This is essentially recalibrating the Autonomic Nervous System, to move us away from Danger / SNS dominated states (mobilisation with fear), or Dorsal Vagal Life Threat feelings that result in us wanting to hide and / or feeling useless and / or not feeling good enough. Breathing, movement, and touch therapies can restore Autonomic Balance, so we move increasingly into a safe space – that of Ventral Vagal. As the body settles, everything in the periphery becomes quiet [Wallnöfer 2000], which means we become aware of our body state through the "bottom up autonomic (ventral vagal) afferents. This will allow the PFC to come back on line.

II. Top down: as Autonomic Balance is restored – recalibrated [van de Kolk 2014], then Mindfulness Meditation and Yoga can be of great help as the PFC is restored and so reflection and dialogue become possible. PFC activation in turn reduces amygdala activity – see Glossary Figure G4-A above; and G4B below.

[27] We are less likely to suffer from PTSD if, soon after the trauma, we experience wholesome hugs and nurturing, and so can begin to feel safe and cared for (restoring our Ventral Vagal). Also, running away from a traumatic experience reduces the chance of PTSD (e.g. those in New York running home after the 9/11 attack); on the other hand, if following trauma, we are bundled into a large transport carrier, and cannot move, PTSD is much more likely – as occurred following Hurricane Katrina (2005) in New Orleans [van de Kolk 2019].

Comments on Figure G4-B

i. Many sensory inputs can trigger an acute activation of the original trauma, which is experience in the body, not in memory per se.
ii. These inputs can include smells, sounds, body posture, facial expression etc.
iii. These inputs are neurocepted (i.e. no conscious awareness) in the Thalamus, which sends signals to
iv. the amygdala (the body's 'smoke detector'), which in turn sends messages to the body (e.g. to start running away – actually via the motor cortex).
v. Further signals go to the Pre-Frontal Cortex, which is closed down and is therefore 'off-line' and out of action.



vi. Being out of action, it is impossible to think clearly or reflect.
vii. In this situation psychotherapy, at this stage, is not helpful [van der Kolk 2019].

Figure Glossary G4-B
Triggers of PTSD response include sound, smells, images, faces, and voice intonation
Based on Bessel van de Kolk 2014; 2019

viii. The body becomes hyper-vigilant (SNS overactivity) or shuts down (the Dorsal Vagal response – not shown).
ix. Despite being in hypervigilant states, sufferers of PTSD are often out of touch with their bodies (partly because the PFC is not functioning properly.
x. So a vital first step in therapy is often through body work – such as dance, singing, music, yoga,
xi. which over time can enable us to become re-connected with our bodies -i.e. the bottom up approach.
xii. A top down approach through classical psychotherapy / talking therapies comes later [van der Kolk 2019].

Let us take stock of the above, which has focused on triggers, especially in the context of Post Traumatic Stress Disorder. However, all of us are subject to triggers (e.g. from our spouse / partner / children), and these often result in us not feeling safe, with the activation of our SNS flight / fight response, or the Dorsal Vagal 'give up' / "I'm not good enough" response. In these cases our Pre-Frontal Cortex is easily knocked out – for a short or less short time. Bessel van der Kolk jokes that if he has an upset with his wife, he may well say something like: "Darling, it is just that your Pre-Frontal Cortex has gone offline……by the way, mine was already offline!"
Figure G4-A reminds us of the importance of regular meditative practice, facilitating Jen and Ubuntu, and feeling Safe.

Resilience /

Resilience	This can be defined, in general terms, as: ❖ "The rapidity with which we recover from adversity." [Davidson 2018]

Figure G5 was created by Davidson way back in 2001, to depict two general ways in which we may respond to a Stressor. Graph A (in red) indicates a long recovery time, whereas Graph B (in blue) indicates a much shorter recovery time. His subsequent research has shown this to be generally true.

Lingering Resentment and Afflictive Stickiness are often associated with poor recovery time, i.e. Graph A.
Also see Ross 2010 Section 6.10 pp 219-220, with the original Davidson graph.

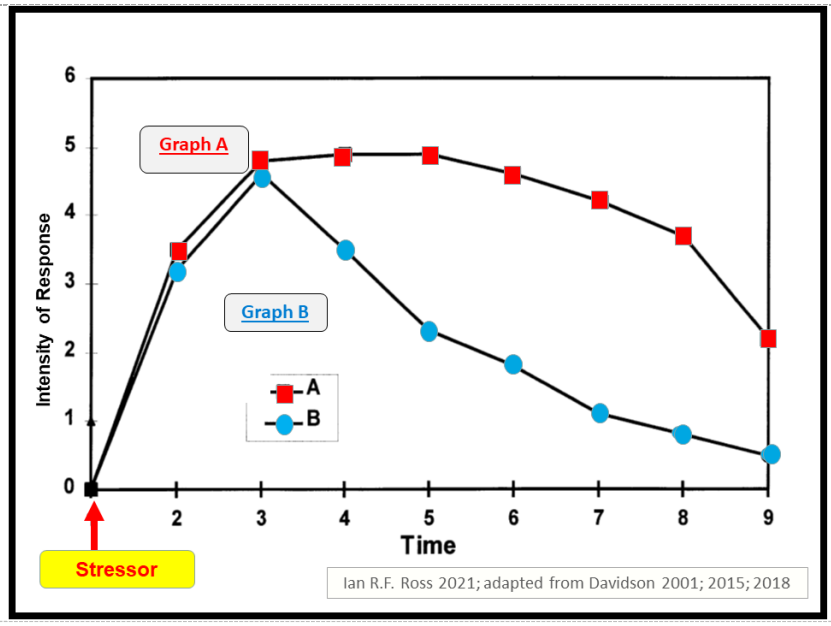


Figure G5 Stressors and Types of Recovery Responses
[Davidson 2001]
Original Davidson figure with thanks 30-11-2009.
The above is a colour enhance adaptation of the original

The forms of meditation covered in this article can enhance our resilience, and enable us to be kind to our distressed selves – and befriend these distressed states [Welwood 1983].

See also web article B 26, especially Sections 3.3B and 3.3C.

Second Arrow Adapted from glossary B26 and D 11 on Web: Sukha: Paths of Well-Being, PSNS Afferents, and Inner Warmth: *from Duhkha to Sukha* [Ross 2017]	There are, of course, many things in life that can result in us suffering. In Buddhist psychology the perceived cause is sometimes referred to as the 'first arrow'. However, what can cause us to suffer deeply is not this, but rather *what our minds tend to make of this*. For example: ➢ We may get a bad cold; and start to say to ourselves: "Why me? Why should this happen to me right now at this important time in my life?" ➢ We may be irritated by someone at college, at work, or in the family – and embark on negative ruminations about them in which we plot to get our own back – feeding the "negative wolf" [Fredrickson 2009 p 179] within with hatred and ill-will towards the other. These are both examples of our response (the second arrow) inflicting more suffering within us than the original event / incident. ❖ Autogenic Training, and other Mental Training approaches, can help us to prevent or deflect this second arrow from penetrating. This ability is associated with a growing meta-awareness.
Tranced Like States /	

Trance Like States Adapted from Glossary of Ross 2010; and specifically referring to Essays E3 and E6	It is suggested that during a therapeutic session (especially in a Rossi type therapeutic session) we enter a trance like state [cf Rossi 2002 pp 66-68]. In this state we are probably increasingly activating the Right Hemisphere with associated holistically orientated and creative thinking: this may then lead to the breakthrough / insight to resolve the crisis that we have entered, which follows a realisation that we are in a muddle (cognitive dissonance).

Such a trance like state may also occur during the rest period of Rossi's Basic Rest Activity Cycle: and thus also lead to new insights and understandings.

- Certain new understandings / insights have come when I have been in such a state, and in the case of Essay Three I have notated these in the text with the abbreviation / symbol: T.L.

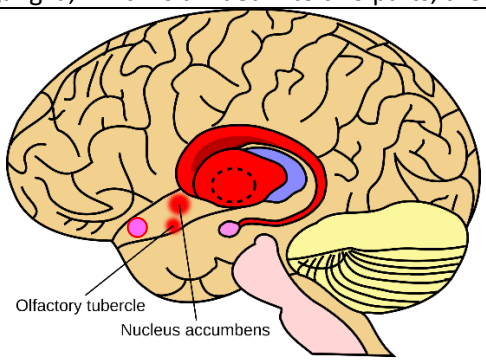
Rossi's Four Stage Model of Therapeutic Work: Data Collection; Incubation; Crisis; and Verification / illumination [Rossi 2002 op cit] is summarised in Ross 2010 especially pp 125-136; including Figure 3.23 on page 134.

Finally, there is good evidence that creativity can be enhanced by physical movement and dance – anything in fact that stimulates cerebellum activity – including play.

> …..an fMRI study at Stanford is particularly interesting. Not only did it find a negative correlation between creativity and involvement of the left prefrontal cortex, it also found that greater involvement of the cerebellum improved creative problem-solving. Since the cerebellum is entirely unconscious, and involved in sensorimotor co-ordination, this confirms both that the unconscious mind and the body play an important role in creativity, and that thinking is not separate from perceiving, feeling and bodily motion.
>
> McGilchrist 2021A p 278

Ubuntu Based on glossary entry of B 26 See also Jen Also see: Ngomane 2019	An African concept that in essence is a reflection of Inter-Being. The spirit of ubuntu can perhaps best be described in the following short story: An anthropologist once proposed a game to some children of an African tribe. He put a basket of fruit near a tree and told them that whoever got there first won all the sweet fruits. When he gave them the signal to run, they took each other's hands, running together, and then sat down in a circle and enjoyed their fruits. The anthropologist was perplexed, and asked them why they chose to run as a group when they could have had more fruit individually. After some silence, one child spoke up and said: ❀ "UBUNTU. How can one of us be happy if all the other ones are sad?" 'UBUNTU' in the Xhosa culture means: "I am because we are." *What follows below has been added as a result of Annie Sturgeon[28] asking me the difference between Jen and Ubuntu; this is a good question, and this is my formulation:* The concept of ubuntu overlaps with, yet is not the same as, Jen. If we are born into a society where ubuntu is the quintessence of the communities of that culture, then, in general terms, Jen will develop naturally [Ngomane 2019]. If, on the other hand, we are born into a culture in which individualism, "me first", and ego dominate, then there may be no sense of ubuntu, and Jen will not naturally develop. That is to say, Jen will not develop as a natural and wholesome Habit Energy [Hanh 1998; and see Glossary of D11 on web]; rather, it will have to be worked on by each person – as part of the maturational process of life. Meditation facilitates this process as it enables us to be in the Ventral Vagal modality much more of the time, and therefore feel safe – leading to wholesome social engagement. Generally speaking, activation of our SNS (mobilisation in the context of fear) and Dorsal Vagal (life threat, not feeling good enough) will block Jen.
Vental striatum /	

[28] Annie is an Autogenic Therapist, colleague and friend.

Ventral striatum Striatum means striped See section: 2.III: Loving Kindness and Compassion	The Striatum is the largest structure of the basal ganglia, which is divided into two parts, the: ○ Dorsal Striatum ○ Ventral Striatum The Ventral Striatum includes the nucleus accumbens and the olfactory tubercle, as indicated in the diagram. In the context of this B 27 article, the relevance is that the Ventral Striatum is associated with ❀ "actions" to reduce e.g. suffering……and in decision making. Davidson 2022[MNI]	 Glossary Figure G6: Ventral Striatum location… Image from Wikipedia with thanks *Legend:* ○ Ventral Striatum: red circuit within brain ○ Amygdala in pink ○ Thalamus in blue.
Vipassana /	actions to reduce suffering and improve decisions making	

Vipassana Meditation and Autogenic Training	Some practitioners of Autogenic Training have been keen to see it as totally separate from other forms of meditation. I think this is a false and misleading position. Luis de Rivera in his book, Autogenics 3.0 [de Rivera 2018], repeatedly cites links between AT and ancient meditative traditions (especially Tibetan Buddhist traditions). Many therapeutic approaches now embrace Mindfulness, as the above glossary entry makes clear [de Rivera 2018 p 36]. De Rivera developed Feeling Meditation (Feeling the Feeling Meditation), and when he was discussing this with yogi master Alejandro Torrealba, the yogi master replied: "This is serious vipassana" [de Rivera 2018 p 119]. Luis de Rivera goes on to say: ❀ "Feeling Meditation is focalized *vipassana*. You do not divert your attention to everything that comes up, as some people may define mindfulness, but you keep your passive concentration on the dynamics of the feeling." [de Rivera 2018 p 119] One of the other professionals who clearly acknowedges our debt to these ancient traditions is Pat Ogden [Ogden 2021].
Wallnöfer, Heinrich Part I Adapted and updated from Ross 2010 p 29	Heinrich Wallnöfer was a key figure in the development of Autogenic Training, including being founder of the Austrian Society for Autogenic Training and Psychotherapy, Wien. "AT has proved to be one of the rare, really holistic, forms of psychotherapy. It is based both on biological, physiological, and depth psychology laws." [Greene 2004 p 5].

He developed Analytical Advanced Autogenic Therapy.

Advanced Autogenic Therapy involves:

i. Standard Exercise practice
ii. The client then staying/ lingering in the "Autogenic state"…….
iii. ……. any images / thoughts arising then being explored - initially with the guidance of an experienced therapist.
iv. the experiences being written down and re-viewed and / or analysed by the subject – with regular discussions with the therapist, after the session.

Based on Bird & Pinch 2002; p 237

Below is a further pertinent perspective on Wallnöfer's Advanced Analytical Autogenic Therapy, given by Jane Bird:

> Dr Heinrich Wallnöfer (University of Vienna) developed this extension of AT, in which the standard exercise is practised and the participant lingers in the altered state, allowing the mind freedom to roam and explore any arising images or thoughts. The initial stages of this always need the guidance of an experienced therapist. After the exercise, observations are noted and analysed by the participant. These analyses are discussed with the therapist at regular intervals.
>
> Bird 2015 p 263

❖ Wallnöfer gave the Schultz Memorial Lecture to the British Autogenic Society in London in 2000. Regarding the origins of AT he said:

Wallnöfer, Heinrich Part II /

Wallnöfer, Heinrich Part II

A web search indicated that one of his publications was a book entitled:

- Healthy with autogenic training

The following review is from the website, having been translated automatically by the website.

The book "Healthy with Autogenic Training" is not only a revision course for all those who teach autogenic training or autogenic psychotherapy in the sense of the founder I. H. Schultz, but above all a vademecum for all those who learn autogenic training as part of a course, psychotherapy, clinical treatment.

- First, the basics of autogenic training are explained in around 30 pages, then
- a helpful clear presentation of what is important in the individual exercise steps of autogenic training follows on another 30 pages.
- The use of autogenic training then takes on a similar extent, be it in psychosomatic/physical, mental or neurological disorders, in sexual problems or in the area of targeted behavior change such as smoking cessation.

You can tell from the book: Whoever writes in this scarcity and conciseness, in this intensity and depth and at the same time understanding and clarity, must combine a lot of experience, meditative essentiality and genuine humanity. This is why the doctor and psychotherapist Wallnöfer is known to his colleagues at home and abroad, his countless patients and students – for this and also for his bridging between Eastern and Western culture.

Healthy with Autogenic Training : Heinrich Wallnöfer : 9783901126727 (bookdepository.com)

Extract from Bookdepository website. [ISBN13 978390112672]

Bullet points added by IR

Wallnöfer, Heinrich Part III	Heinrich Wallnöfer wrote the foreword to the German edition of de Rivera's Autogenics 3.0. He died in February 2022, at the age of 101. Dr Alice Green provides a touching appreciation of him in a recent (Spring 2022) British Autogenic Society Newsletter [Greene 2022 p 11].	 Heinrich Wallnöfer (right) and Luis de Rivera

*** *** ***

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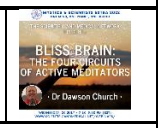

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