

Neurodharma: Growing the Deepest Roots Of the Highest Happiness



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Mind in Life

We can know ourselves in two ways:

- From the outside in, objectively, informed by science, particularly by neurobiology
- From the inside out, subjectively, informed by modern psychology and perennial wisdom

“Neurodharma” is where these two meet.

An Overview of Current Research

Much research on people that psychological practices lead to psychological benefits, presumably via changing their brains.

Much research on other animals that various stimuli lead to many kinds of changes in their brains.

Some research that psychological practices change people's brains.

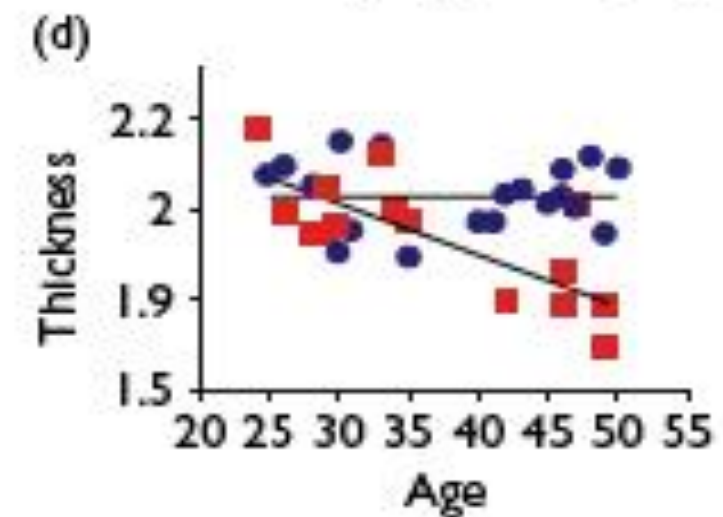
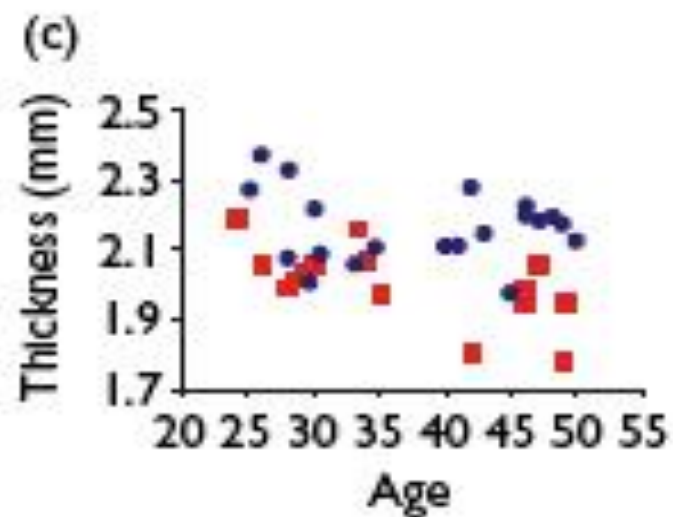
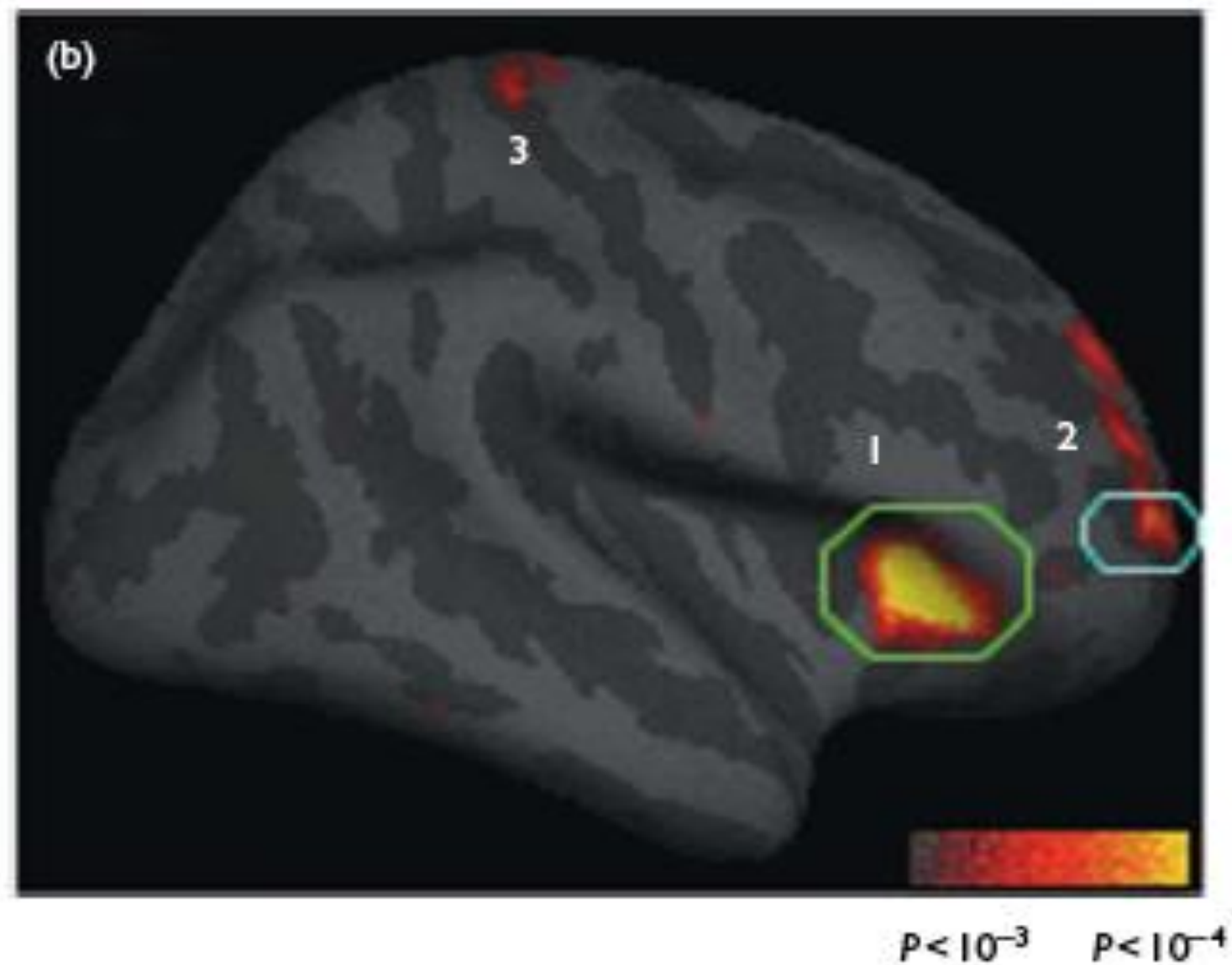
Scattered research on deliberate internal mental factors that lead to individual differences in gains from experiences.

“The absence of evidence is not evidence of absence.”

Key Mechanisms of Neuroplasticity

- (De)Sensitizing existing synapses
- Building new synapses between neurons
- Altered gene expression inside neurons
- Building and integrating new neurons
- Altered activity in a region
- Altered connectivity among regions
- Changes in neurochemical activity (e.g., dopamine)
- Changes in neurotrophic factors
- Modulation by stress hormones, cytokines
- Slow wave and REM sleep
- Information transfer from hippocampus to cortex

Lazar, et al. 2005.
Meditation
experience is
associated
with increased
cortical thickness.
Neuroreport, 16,
1893-1897.

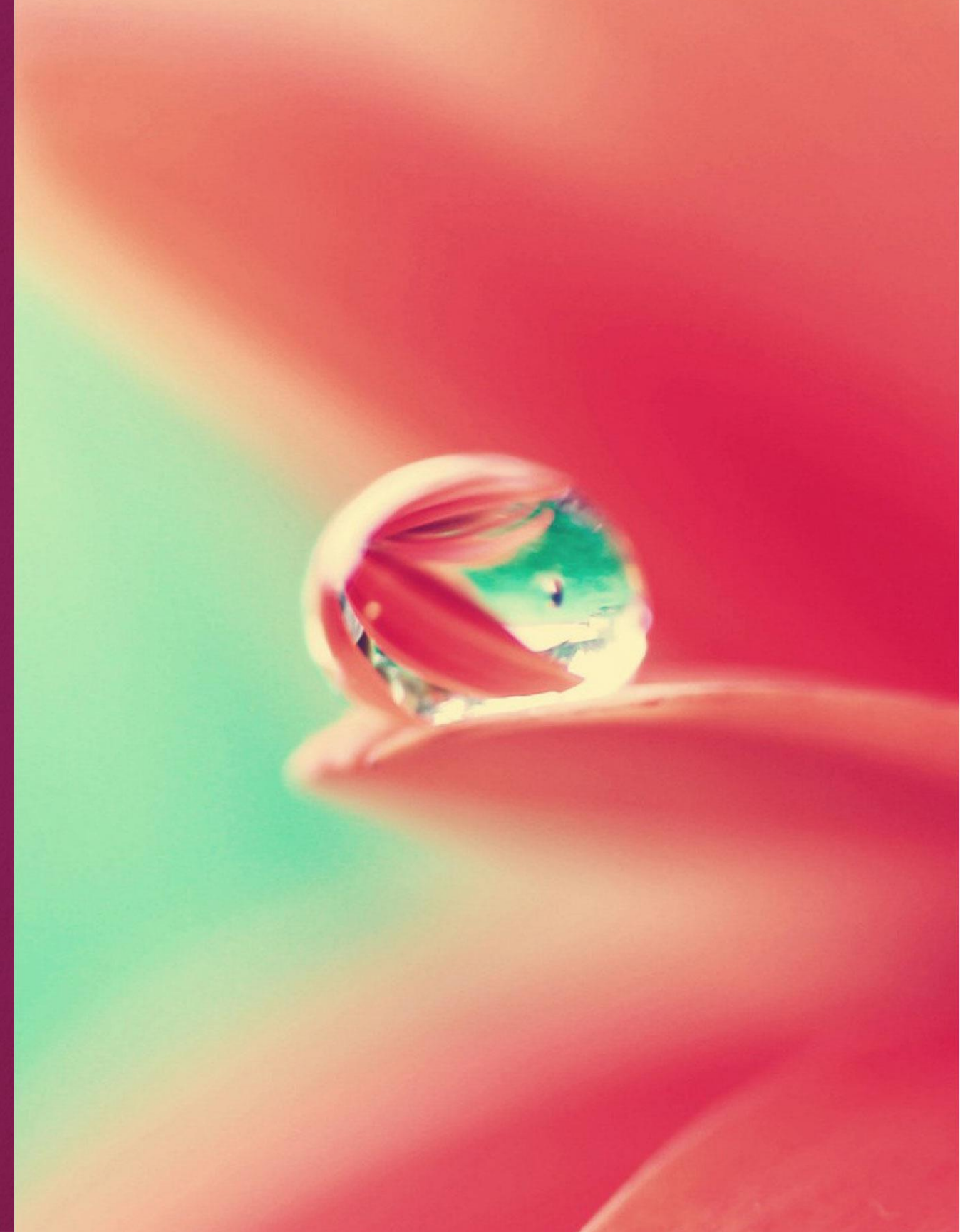


*Think not lightly of good, saying,
“It will not come to me.”*

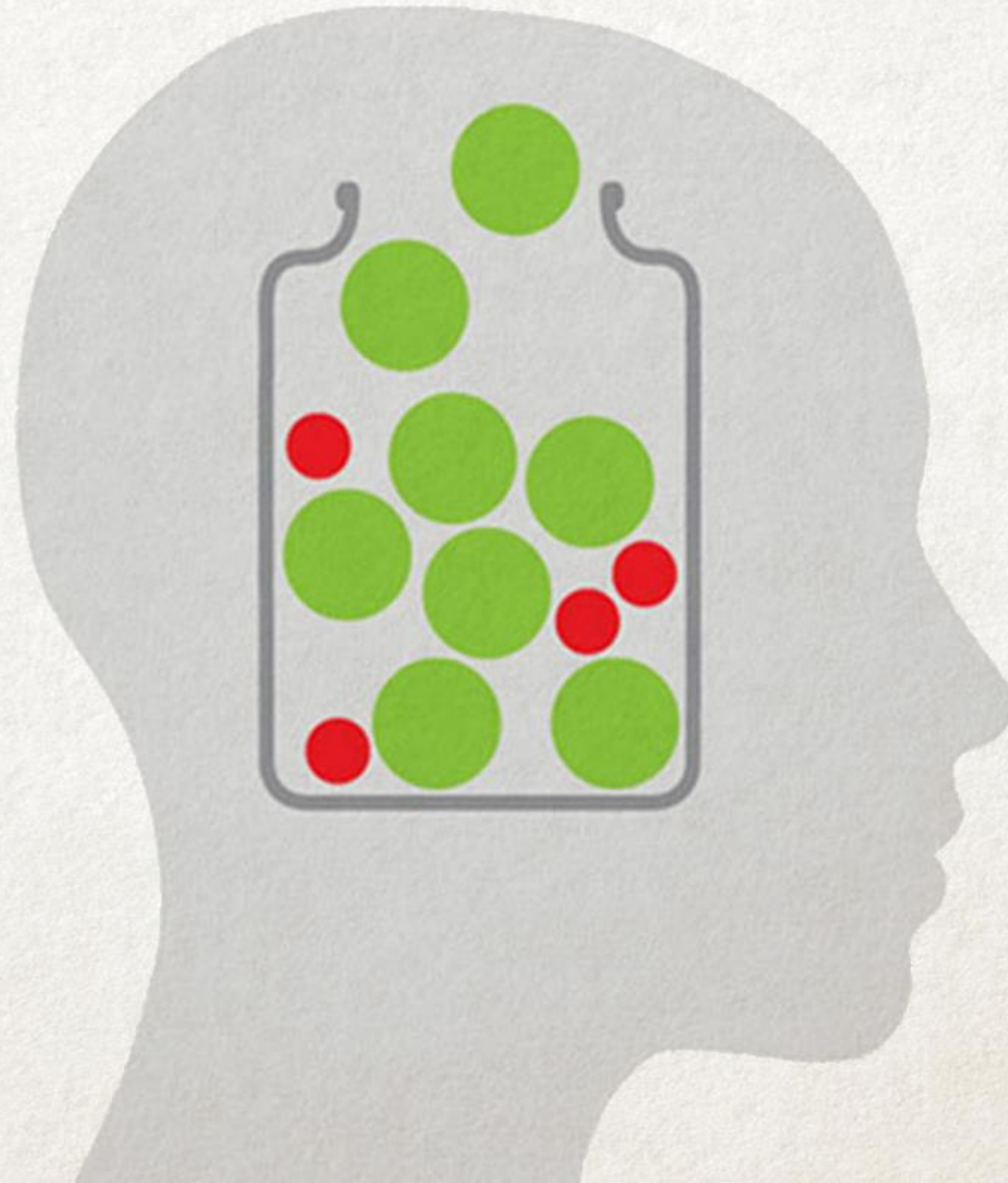
*Drop by drop is
the water pot filled.*

*Likewise, the wise one,
Gathering it little by little,
Fills oneself with good.*

Dhammapada 9.122



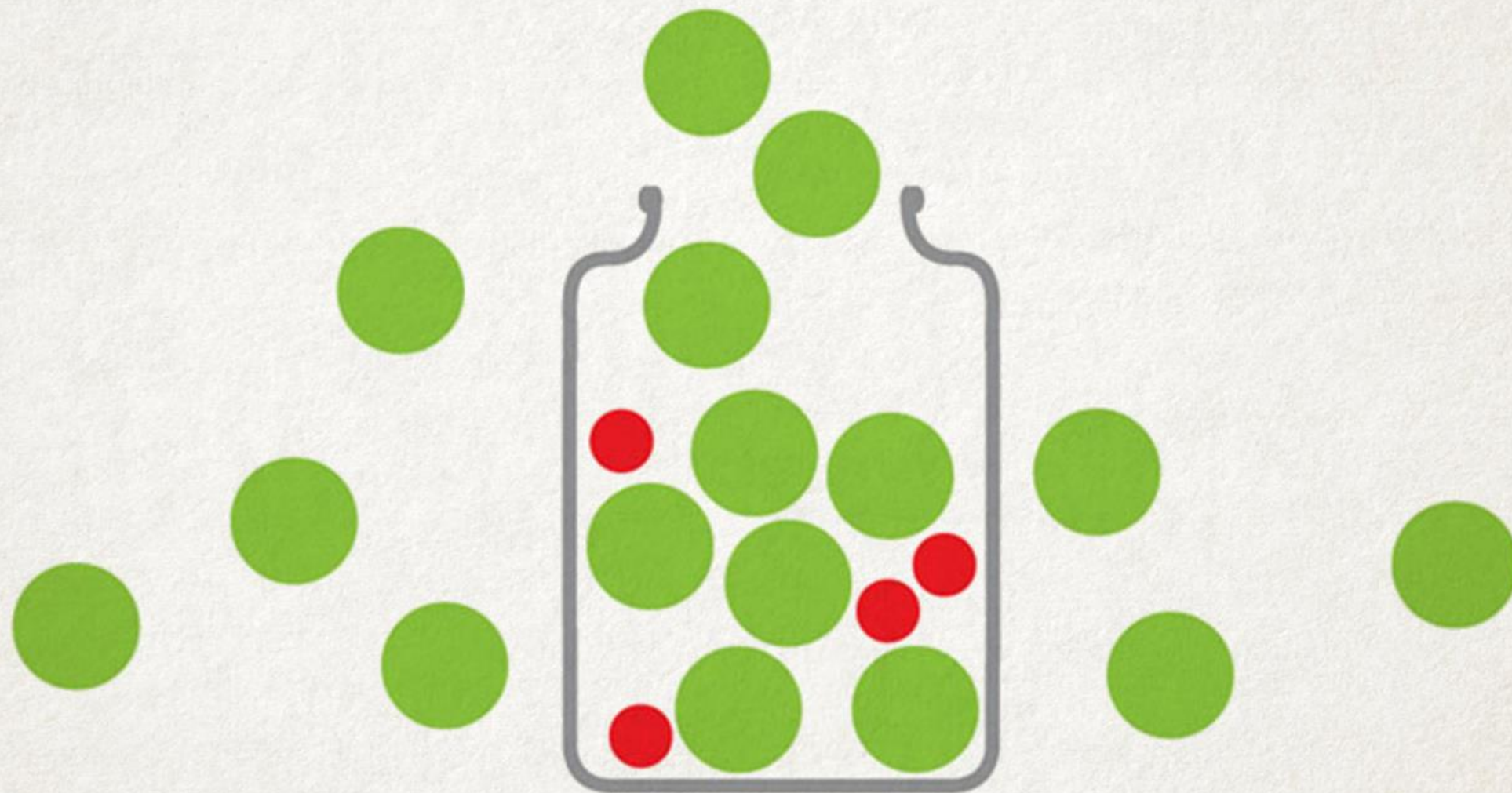
Which Means Changing the Brain For the Better





Neurons that fire together,

wire together.



Have It, Enjoy It

In the Garden of the Mind

1

**Be with what
is there**

2

**Decrease
the negative**

3

**Increase
the positive**

Witness. Pull weeds. Plant flowers.
Let be. Let go. Let in.
Mindfulness is present in all three.

“Being with” is primary – but not enough.
We also need “wise effort.”

In these ways, we can develop seven aspects
and *factors* of the highest happiness:

Steadiness

Warmheartedness

Fullness

Wholeness

Nowness

Allness

Timelessness

In the beginning, nothing came.

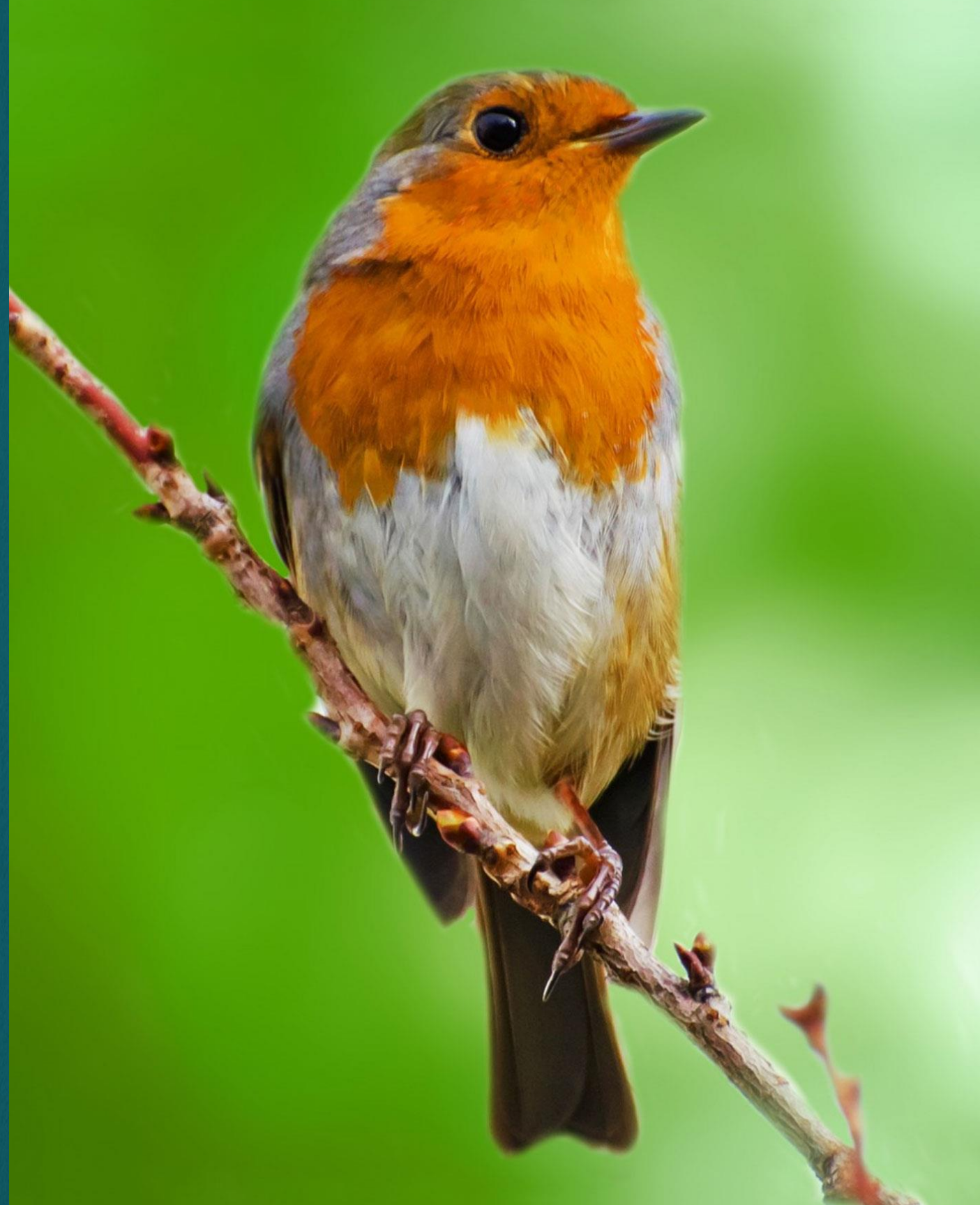
In the middle, nothing stayed.

In the end, nothing left.

Milarepa

*Keep a green bough
in your heart,
and a singing bird
will come.*

Lao Tzu



Steadying the Mind

Basics of Meditation

- Good will toward yourself
- Posture that is comfortable and alert
- In the present; aware and letting go
- Stable object of attention
- The mind settling and coming to rest

Mental Factors of Steadiness

- Establishing intention
- Relaxing body and breath
- Warming the heart
- Feeling safer
- Opening to positive emotions

Neural Factors of Steadiness

- Intention – Top-down and bottom-up
- Relaxation – Parasympathetic NS
- Heartwarming – Social engagement sys.
- Safer – Calms sympathetic NS
- Positive emotions – Steadies attention,
reduces “craving”



Warming the Heart



Self-Compassion

Bring to mind beings who care about you . . . Focus on feeling cared about. . . Take in this experience.

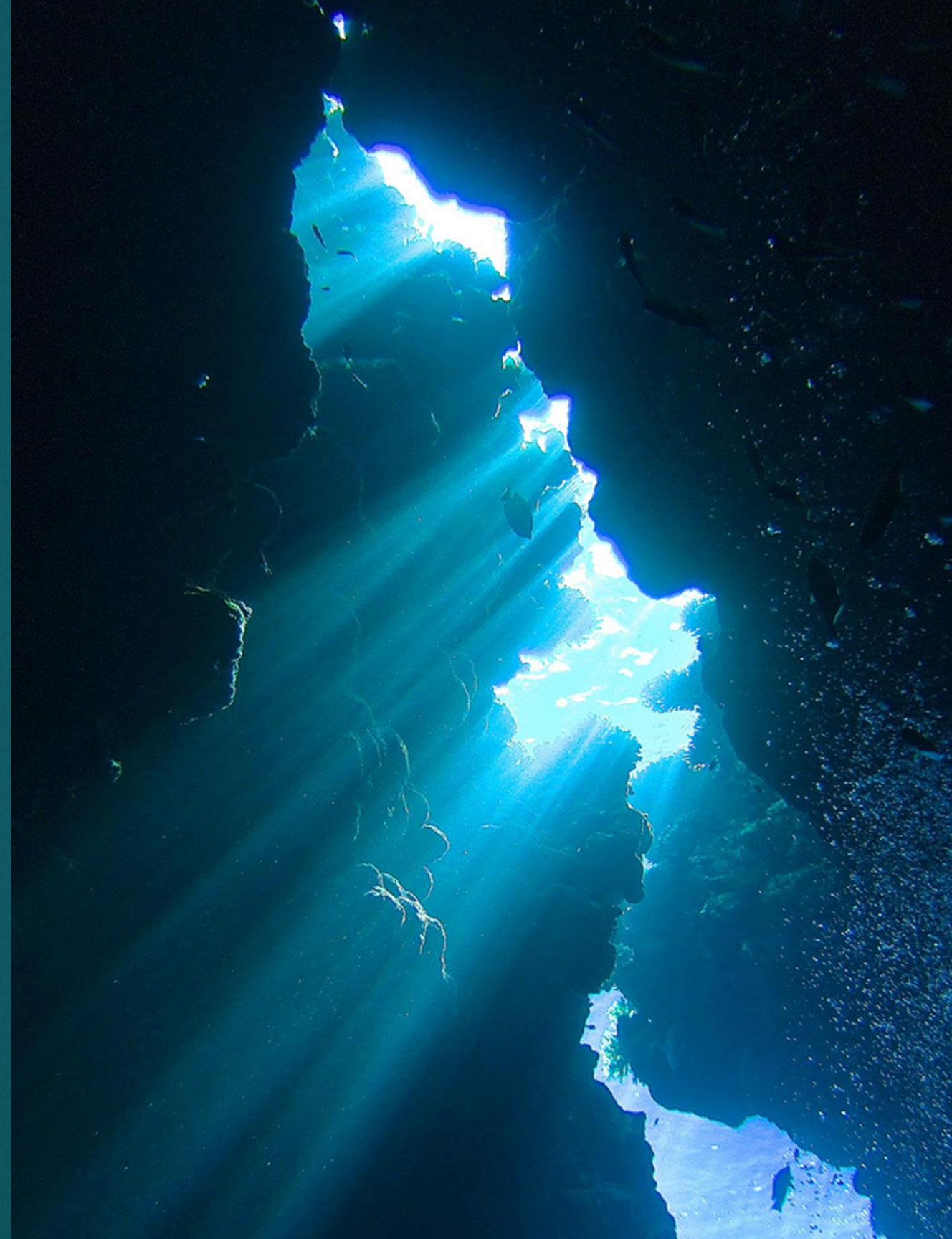
Bring to mind beings for whom you have compassion . . . Receive the sense of compassion into yourself . . . Know what compassion feels like.

Be aware of your own burdens, stresses, and suffering – and bring compassion to yourself . . . Get a sense of caring, warmth, support, compassion sinking deeply into you.

“Anthem”

*Ring the bells that still can ring
Forget your perfect offering
There is a crack, a crack in everything
That's how the light gets in*

Leonard Cohen



Resting in Fullness

Our Three Fundamental Needs



Safety



Satisfaction



Connection

Meeting Our Three Fundamental Needs



Safety

**Avoiding
harms**

(threat response)



Satisfaction

**Approaching
rewards**

(goal pursuit)

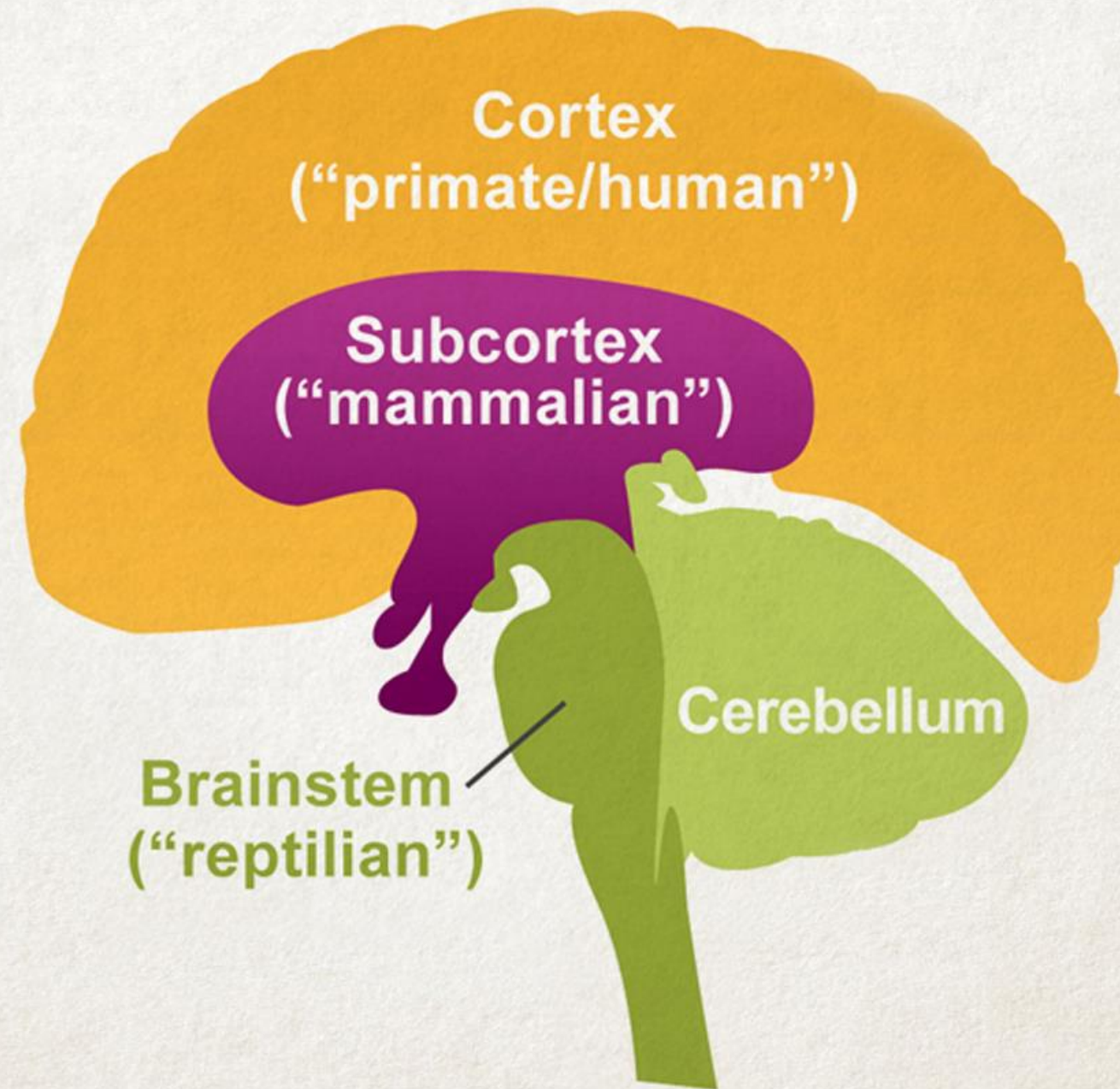


Connection

**Attaching
to others**

(social engagement)

The Evolving Brain



Pet the Lizard



Feed the Mouse



Hug the Monkey



Coming Home

Peace

Contentment

Love



Being Wholeness

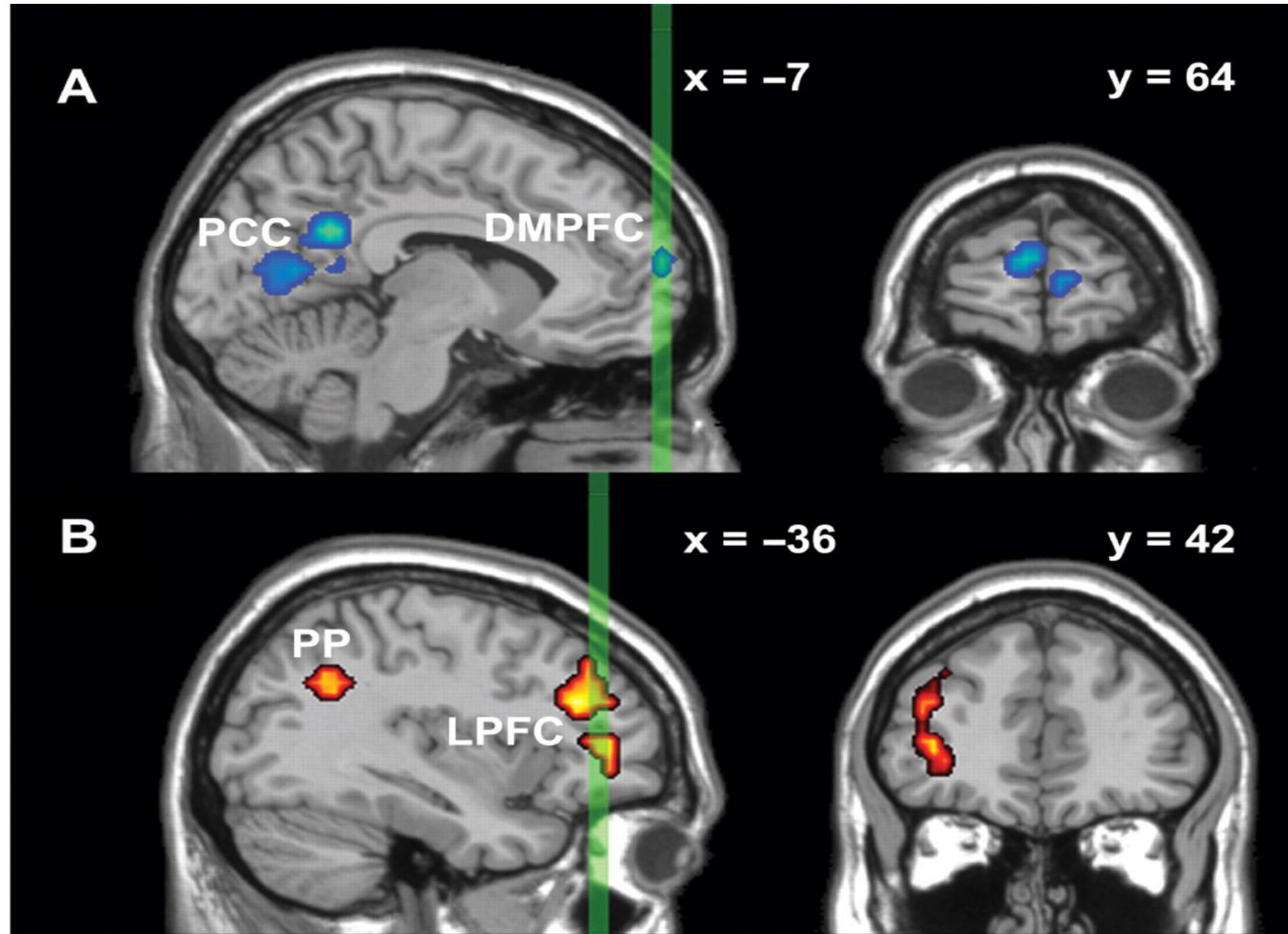
The Parts and the Whole

Suffering is parts struggling with parts.
Which includes not accepting yourself fully.
Meanwhile, there is always mind as a whole.
Mind as a whole simply is, not a problem.
When you experience your mind as a whole,
suffering falls away.



What helps us experience
the mind as a whole?

Self-Focused (blue) and Open Awareness (red)



Ways to Activate Lateral Networks

Focus on the present moment.

Don't problem-solve, fantasize, or ruminate.

Relax the sense of "me" and "I."

Widen into a panoramic view.

Rest in "don't know mind."

Sense your body as a whole.

Sensing Your Body as a Whole

Be aware of sensations of breathing all over your body.

Pick an area (e.g., chest) and include all the sensations there as a single whole.

Relax and receive sensations.

Gradually include more of your body.

Abide as a whole body breathing

Receiving Nowness



*Enlightenment is
to forget this moment
and grow into the next.*

Suzuki Roshi

*Let go of the past, let go of the future,
let go of the present, and cross over
to the farther shore of existence.*

*With mind wholly liberated,
you shall come no more
to birth and death.*

Dhammapada, 24.348

The Present Moment of Mind

Now is the great mystery: infinitely thin temporally, yet containing everything.

Imagine super-slow motion mindfulness of the emergent edge of Now, coming into being as it passes away.

The Present Moment of Brain

The neural networks of alerting track the leading edge of the windshield of consciousness.

These alerting networks entwine with allocentric networks that support the sense of being one with everything.

*If you let go a little,
you'll have a little peace.*

*If you let go a lot,
you'll have a lot of peace.*

*If you let go completely,
you'll be completely peaceful.*

Ajahn Chah

Letting Go

Rest in a sense of alrightness . . . peaceful,
contented, warmhearted.

Be mindful of this moment continually
emerging . . . so it's alright to let go.

Let go while exhaling.

Be mindful of sensations, all experiences
changing . . . letting them pass away.

Opening into Allness

*The Buddha: “Bahiya, you should train yourself thus:
In reference to seeing, there will be only seeing. In
hearing, only hearing. In sensing, only sensing. In
cognizing, only cognizing.*

*When for you there is only seeing in seeing, only hearing
in hearing, only sensing in sensing, only cognizing in
cognizing – then, Bahiya, there is no you in connection
with that.*

*When there is no you in connection with that, there is no
you there. When there is no you there, you are neither
here nor yonder nor between the two.*

This, just this, is the end of suffering.”

*Blissful is passionlessness in the world,
the overcoming of sensual desires.*

*But the abolition of the conceit “I am” –
That is truly the supreme bliss.*

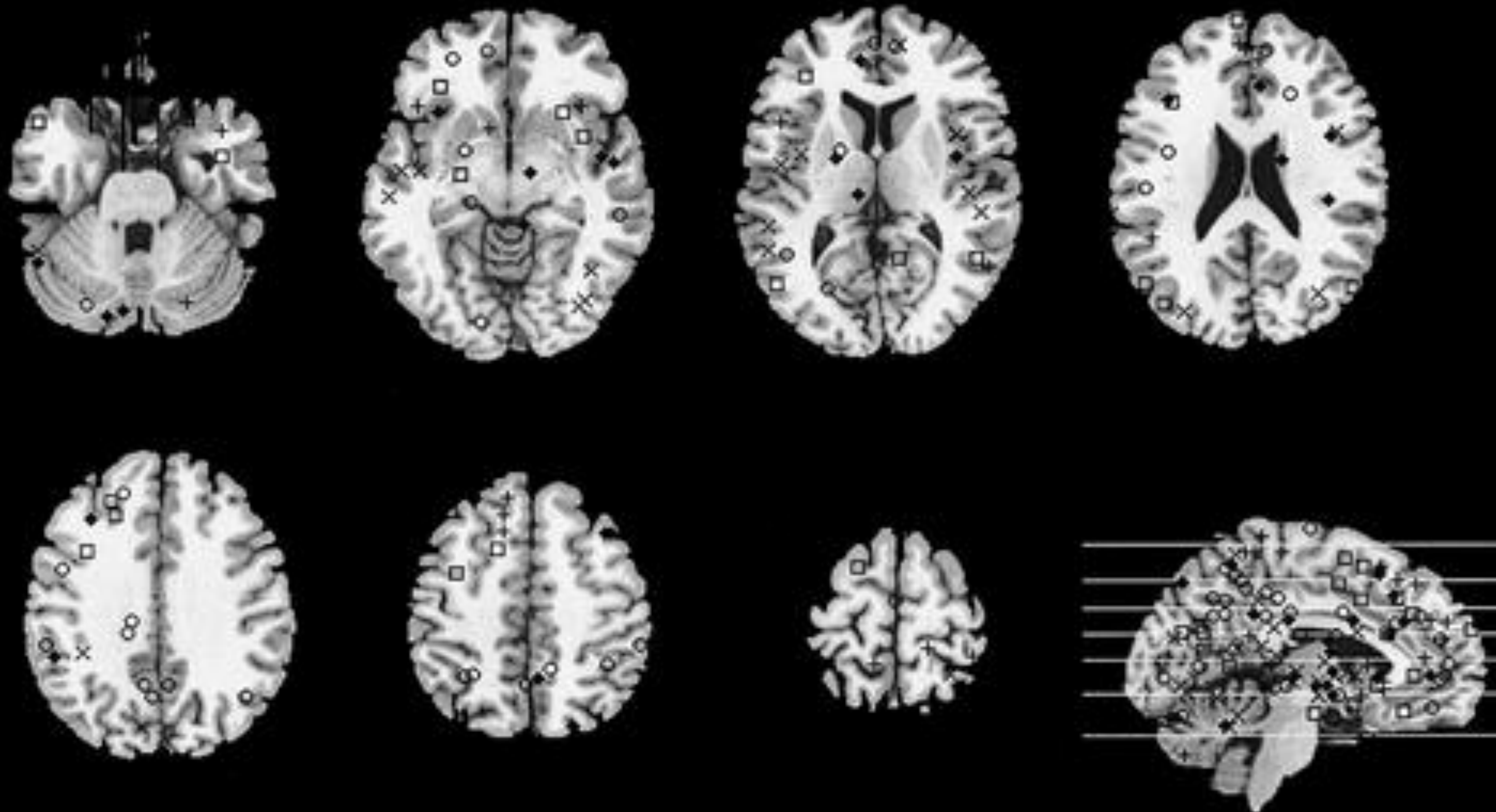
Udana 2.11

*To learn the Buddha way
is to learn about oneself.*

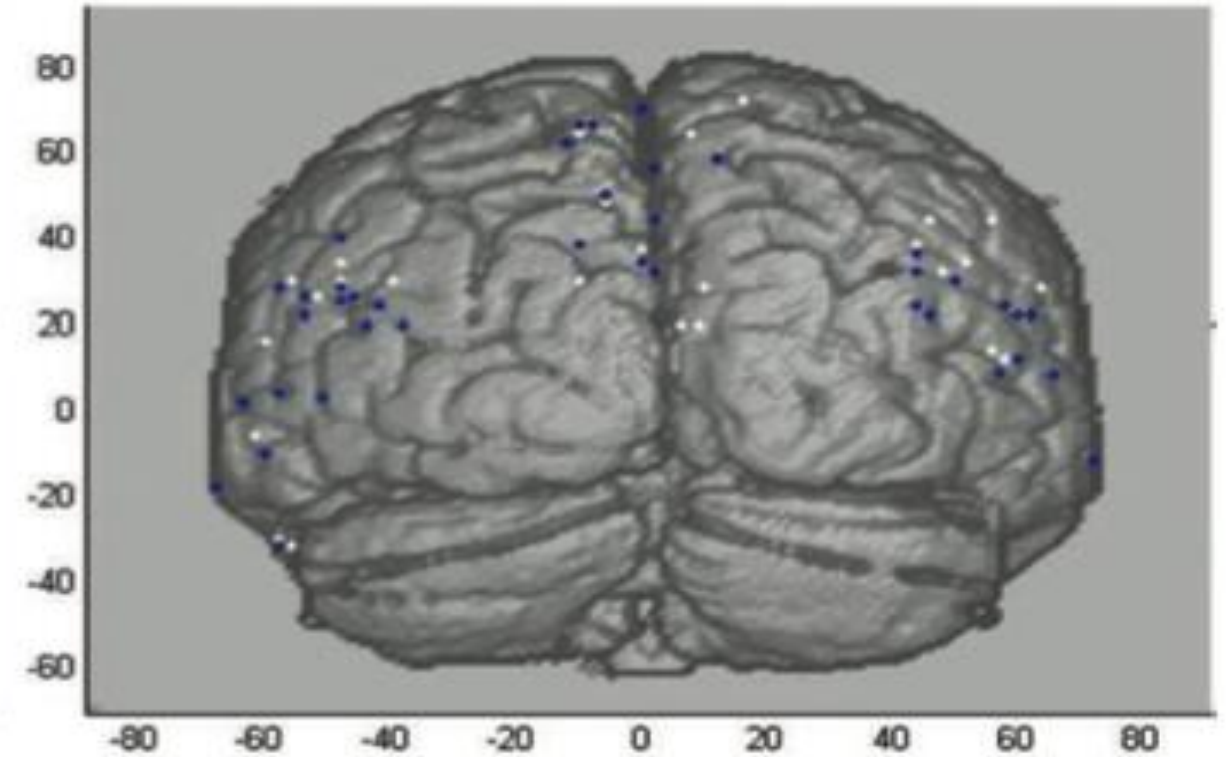
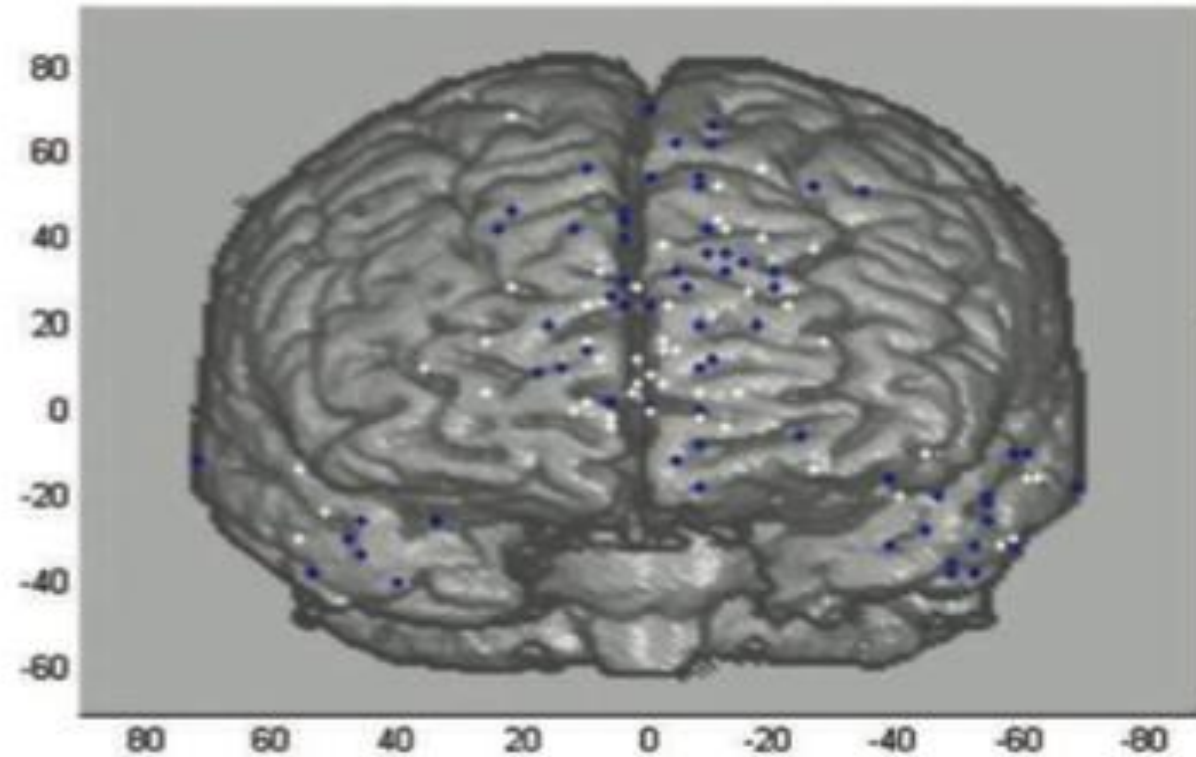
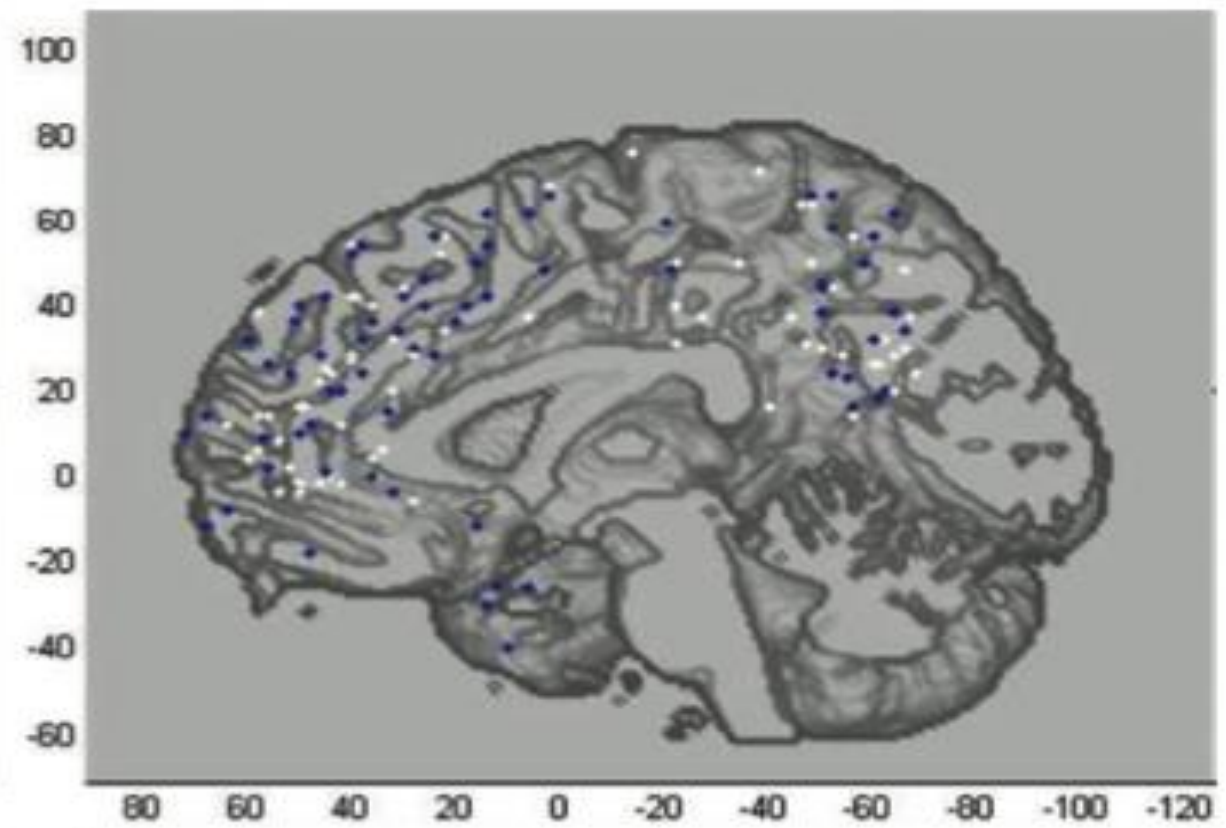
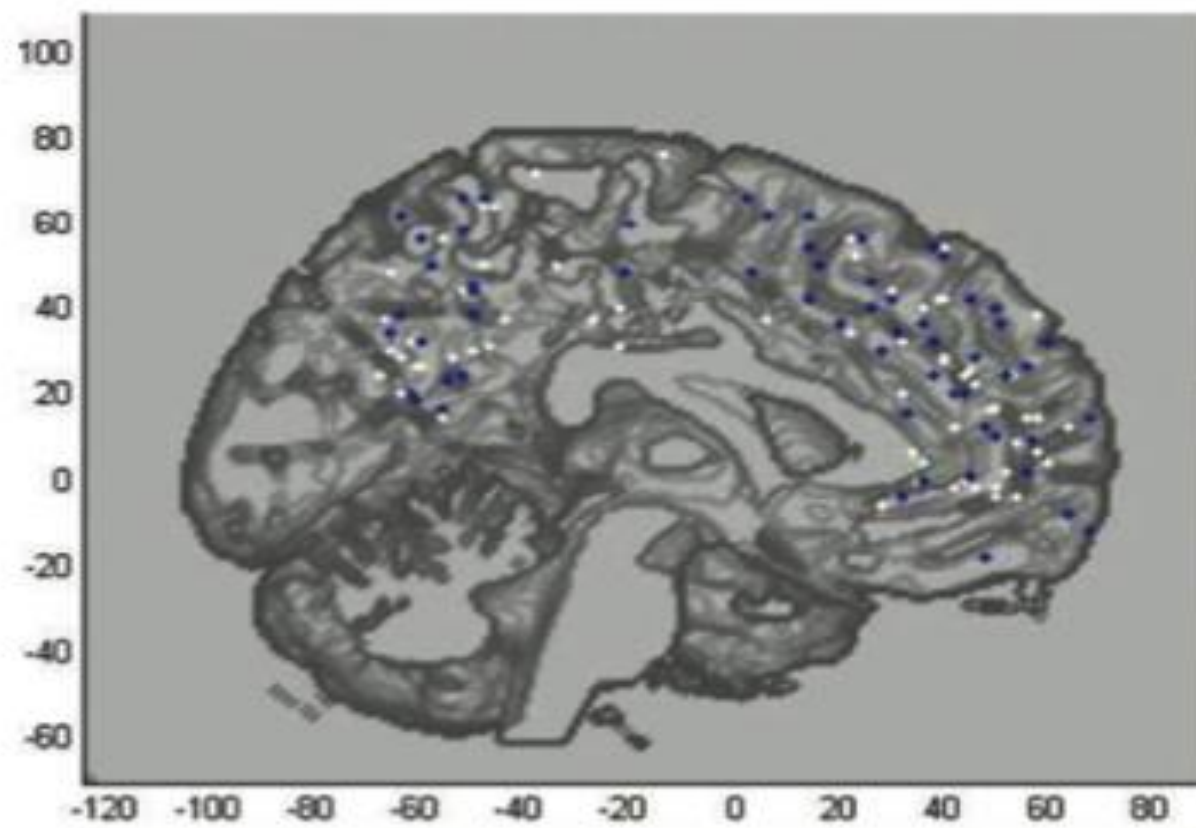
*To learn about oneself
is to forget oneself.*

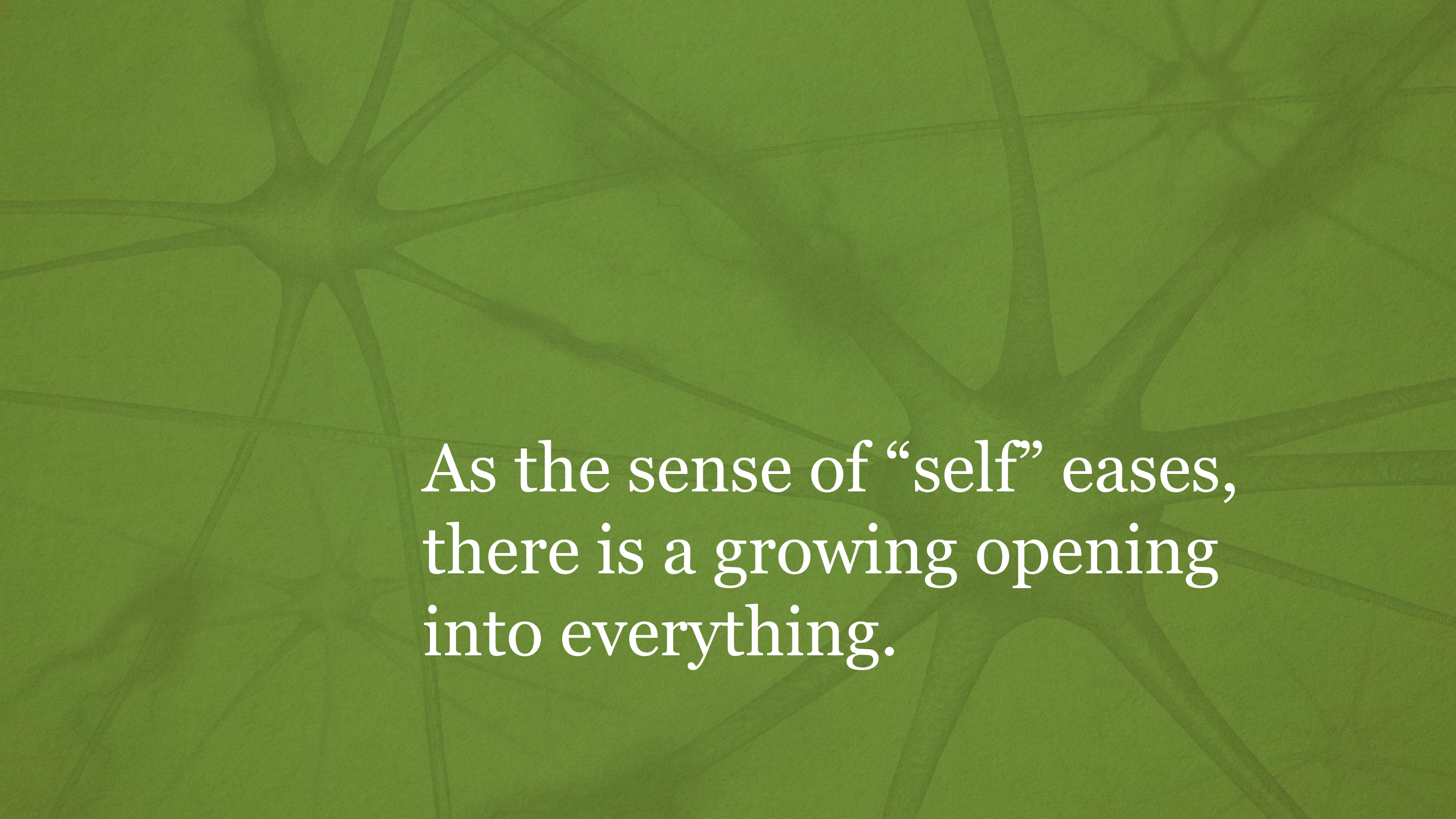
*To forget oneself
is to perceive oneself as all things.*

Dogen

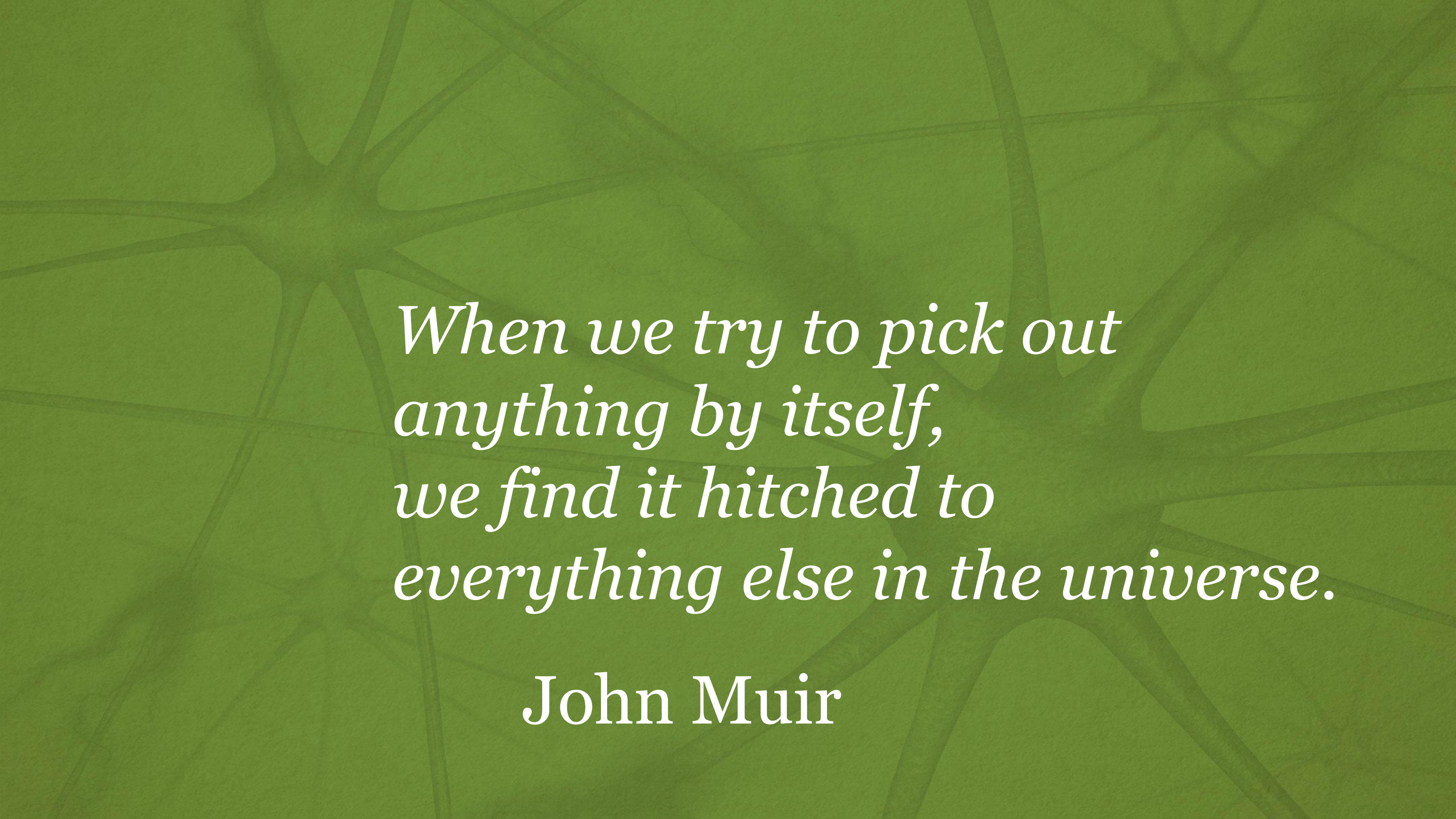


Gillihan, et al. 2005. *Psychological Bulletin*



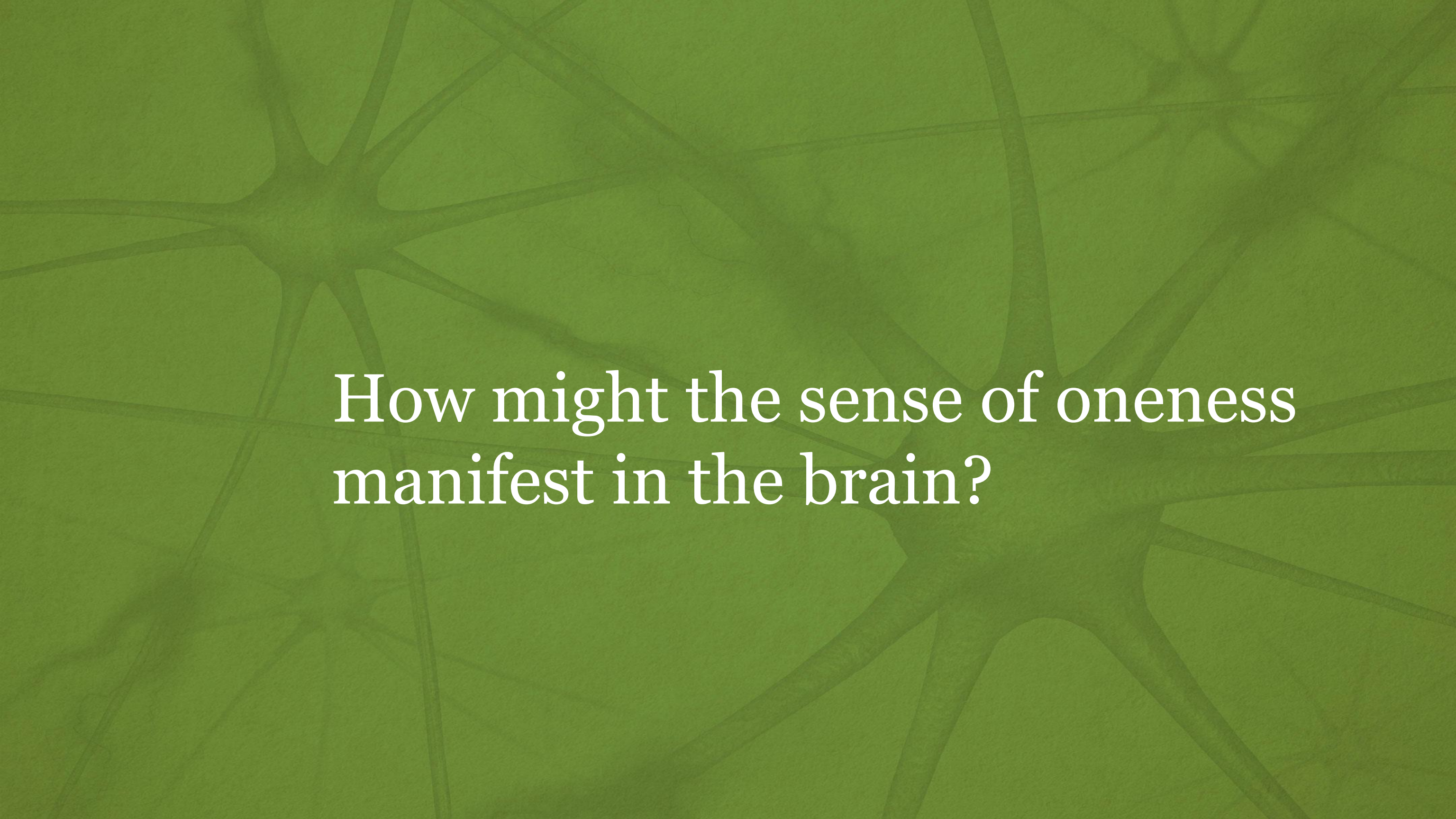


As the sense of “self” eases,
there is a growing opening
into everything.



*When we try to pick out
anything by itself,
we find it hitched to
everything else in the universe.*

John Muir



How might the sense of oneness
manifest in the brain?

Allocentric Framework

Based on more ancient regions of the brain

Being-ness; alrightness already

What it is, independent of “me”; impersonal

Upper visual field

Egocentric Framework

Based on more recent regions of the brain

Doing-ness; goal-directed

Where it is, related to “me”; personal

Lower visual field

The Allocentric/Egocentric Dance

Alternately normally

As one increases, the other decreases

With new stimuli – thus, alerting –
allocentric increases briefly, then
egocentric response shaped by the
hedonic tone

Factors of Allocentrism

Fullness – nothing missing or wrong

Wholeness – wide inclusive awareness

Nowness – alerting, openness

Tranquility – GABA-regulated switches

Recognizing interconnectedness – you're a
local ripple in the vast ocean of causes

Only Allness

Much as the mind is a whole, the material universe is a whole.

The allness that includes every sort of mind and matter is also a whole.

Allness as allness is always allness.

Much as mind as a whole is never a problem, allness as allness is never a problem.

Opening, in Peace

Feeling at ease . . . tranquil and alert

Your gaze or imagination extend out to the
horizon and beyond

Experiences flowing, edges softening

Knowing you are lived by everything

Opening into allness



Intimations of The Unconditioned



*My mind has reached
the unconditioned.*

*I have attained
the destruction of craving.*

Dhammapada 11.154

*The entire world is in flames,
the entire world is going up in smoke;
the entire world is burning,
the entire world is vibrating.*

*But that which does not vibrate or burn, which
is experienced by the noble ones, where death
has no entry –
in that my mind delights.*

The Buddha

*The born, come-to-be, produced,
The made, the conditioned, the transient,
Conjoined with decay and death,
A nest of disease, perishable,
Sprung from nutriment and craving's cord –
That is not fit to take delight in.*

*The escape from that,
The peaceful, beyond reasoning, everlasting,
The not-born, the unproduced,
The sorrowless state that is void of stain,
The cessation of states linked to suffering,
The stilling of the conditioned – bliss.*

Itivuttaka 2.16

Unconditioned Possibility

Consider what may be always just prior to the emergent edge of now.

Also consider whether consciousness is necessary for quantum potentiality to congeal into actuality Now . . . continuously, throughout the universe.

*Be still
Listen to the stones of the wall
Be silent, they try
To speak your
Name.
Listen to the living walls.
Who are you?
Who
Are you? Whose
Silence are you?*

Thomas Merton

Pointing directly to the heart-mind

See your own nature

And become Buddha.

Hakuin

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See **RickHanson.net** for other good books.

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See www.RickHanson.net/key-papers/ for other suggested readings.

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Supplemental Materials

The Negativity Bias

As the nervous system evolved, avoiding “sticks” was usually more consequential than getting “carrots.”

1. So we scan for bad news,
2. Over-focus on it,
3. Over-react to it,
4. Turn it quickly into (implicit) memory,
5. Sensitize the brain to the negative, and
6. Create vicious cycles with others.

Neural Factors of Steadiness

- Intention – Top-down and bottom-up
- Relaxation – Parasympathetic NS
- Heartwarming – Social engagement sys.
- Safer – Calms sympathetic NS
- Positive emotions – Steadies attention,
reduces “craving”

Neural Substrates of Empathy

- Three *simulating* systems:
 - Actions: “mirror” systems; temporal-parietal
 - Feelings: resonating emotionally; insula
 - Thoughts: “theory of mind”; prefrontal cortex
- These systems interact with each other through association and active inquiry.
- They produce an automatic, continual re-creation of aspects of others’ experience.

Calming the Visceral Core

- A brief explanation of heartrate variability
- Relax.
- Gently lengthen exhalations . . . As long as or longer than inhalations . . . Then letting breathing be soft and natural.
- Bring attention into the chest and area of the heart.
- Be aware of heartfelt feelings . . . Perhaps love flowing in and flowing out in rhythm with the breath.

Feeling Alright Right Now

- Aware of the body going on being . . . Enough air to breathe . . . The heart beating fine . . . Basically alright . . . Now
- You may not have been basically alright in the past and you may not be basically alright in the future . . . But now you are OK . . . Still basically OK . . . Now
- Letting go of unnecessary anxiety, guarding, bracing
- Reassurance, relief, calming is sinking into you . . . Still basically alright . . . Now

Calm Strength

Calming in the body and mind

Feeling strong

What feels good about calm strength?

Calm strength while aware of others

Calm strength with goodwill for others

Softening All the Edges

Relaxing, abiding as a body breathing

Sensations softening together

Heart softening

Everything in the mind softening together, a
single mind process, awareness included

Edges softening between you and everything