

Neurodharma: The New Science and Ancient Wisdom Of Awakening



Compassionate Wellbeing
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*Train yourself in doing good
that lasts and brings happiness.*

*Cultivate generosity, the life of peace,
and a mind of boundless love.*

Itivuttaka 1.22



Mind in Life

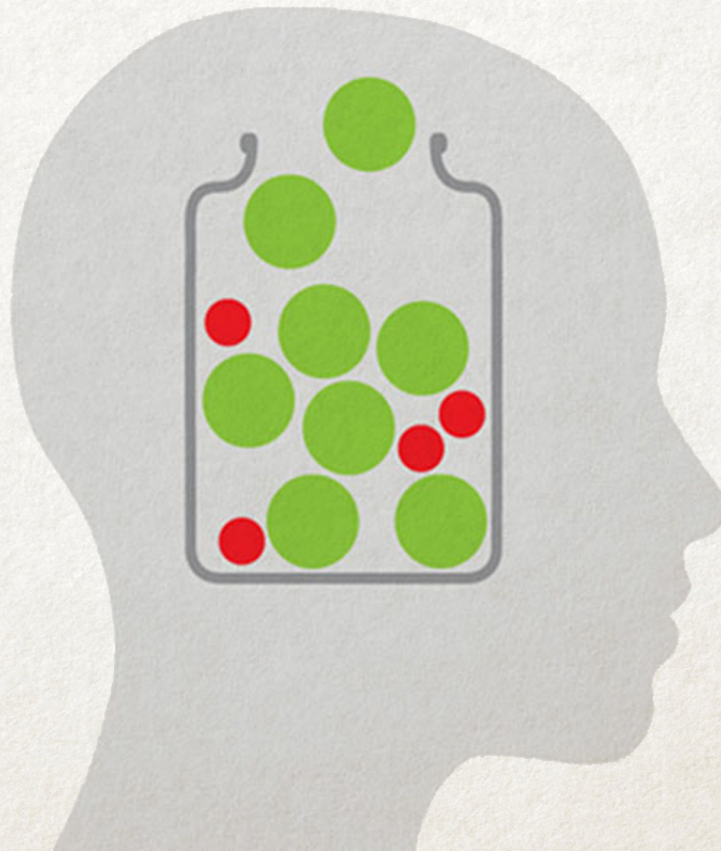


We can know ourselves in two ways:

- 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.

Which Means Changing the Brain For the Better



A detailed illustration of a neural network. The background is filled with a dense web of thin, glowing yellow lines representing axons and dendrites. In the center, a larger neuron is highlighted with a bright green nucleus and a green glow. The text is overlaid on this background.

Neurons that fire together,

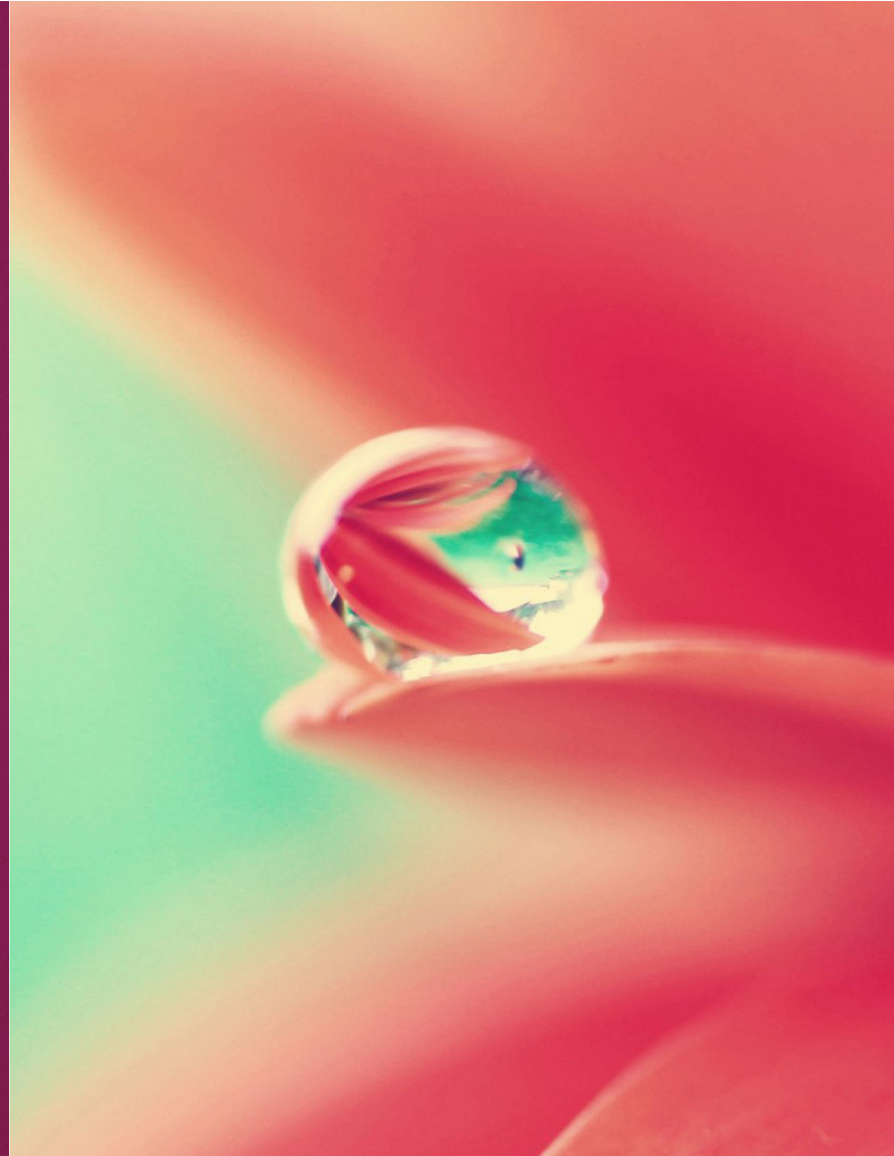
wire together.

*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





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



Steadiness, Warmheartedness, and Fullness

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

Coming Home

Peace

Contentment

Love

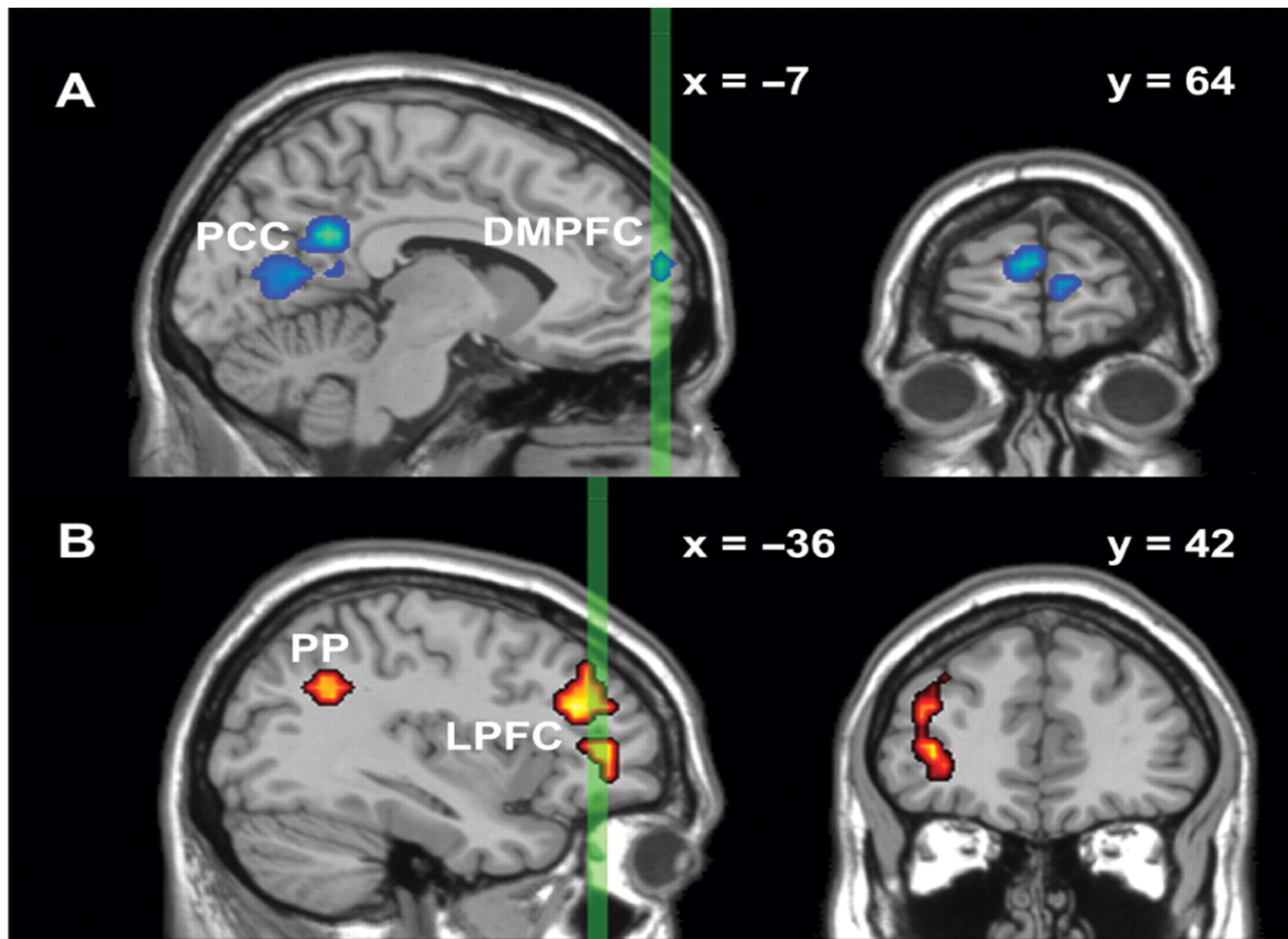


Being Wholeness

The background is a solid olive green color. Overlaid on this background is a faint, light green network of lines. These lines intersect at various points, creating a series of star-like or node-like shapes. The lines vary in thickness and orientation, creating a complex, web-like pattern across the entire frame.

Swirling streaming

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



Farb, et al. 2007. *Social Cognitive Affective Neuroscience*, 2:313-322

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

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

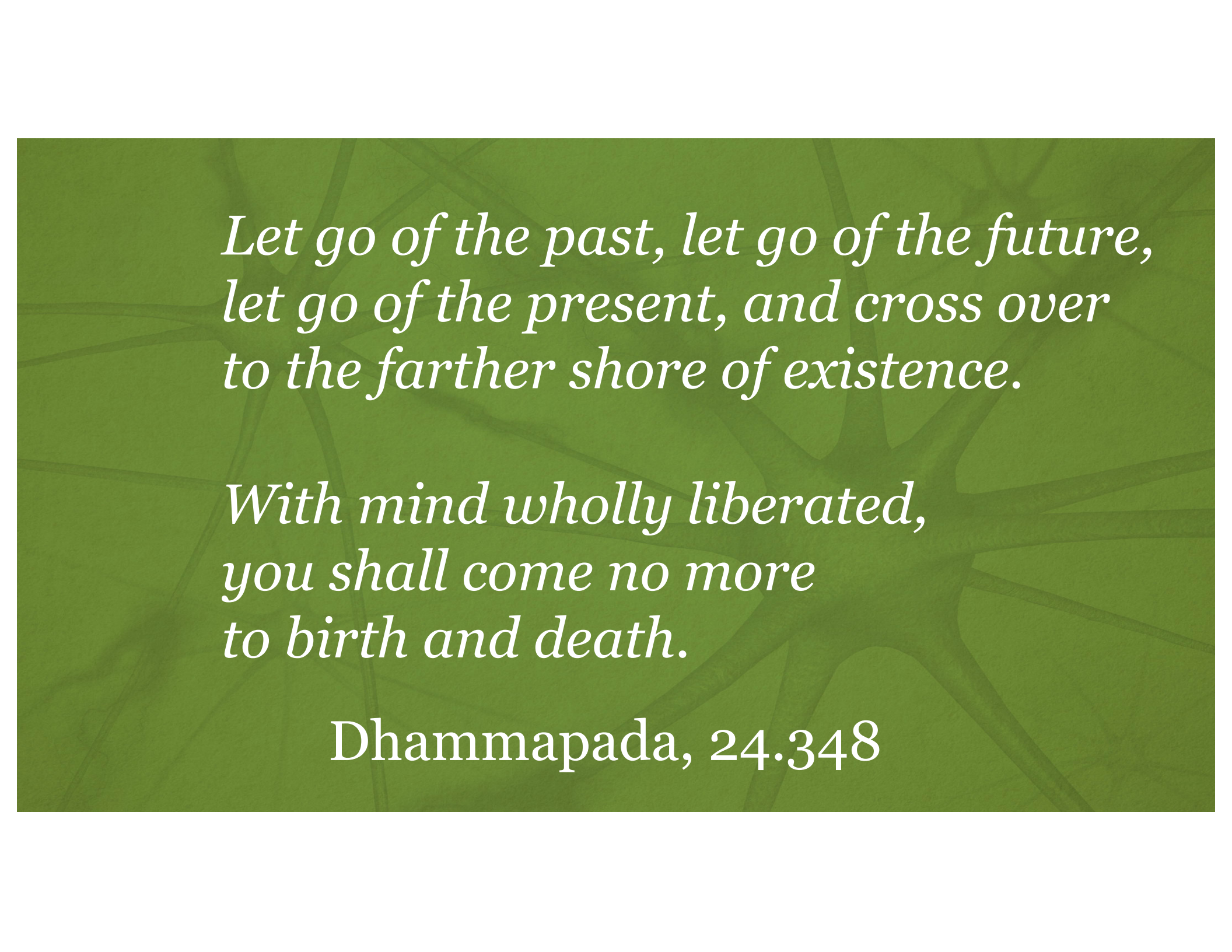


Receiving Nowness



*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

The neural networks of alerting are like the leading edge of the windshield of consciousness, continually updating us with what's new, while also supporting the sense of wholeness and allness.



*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.



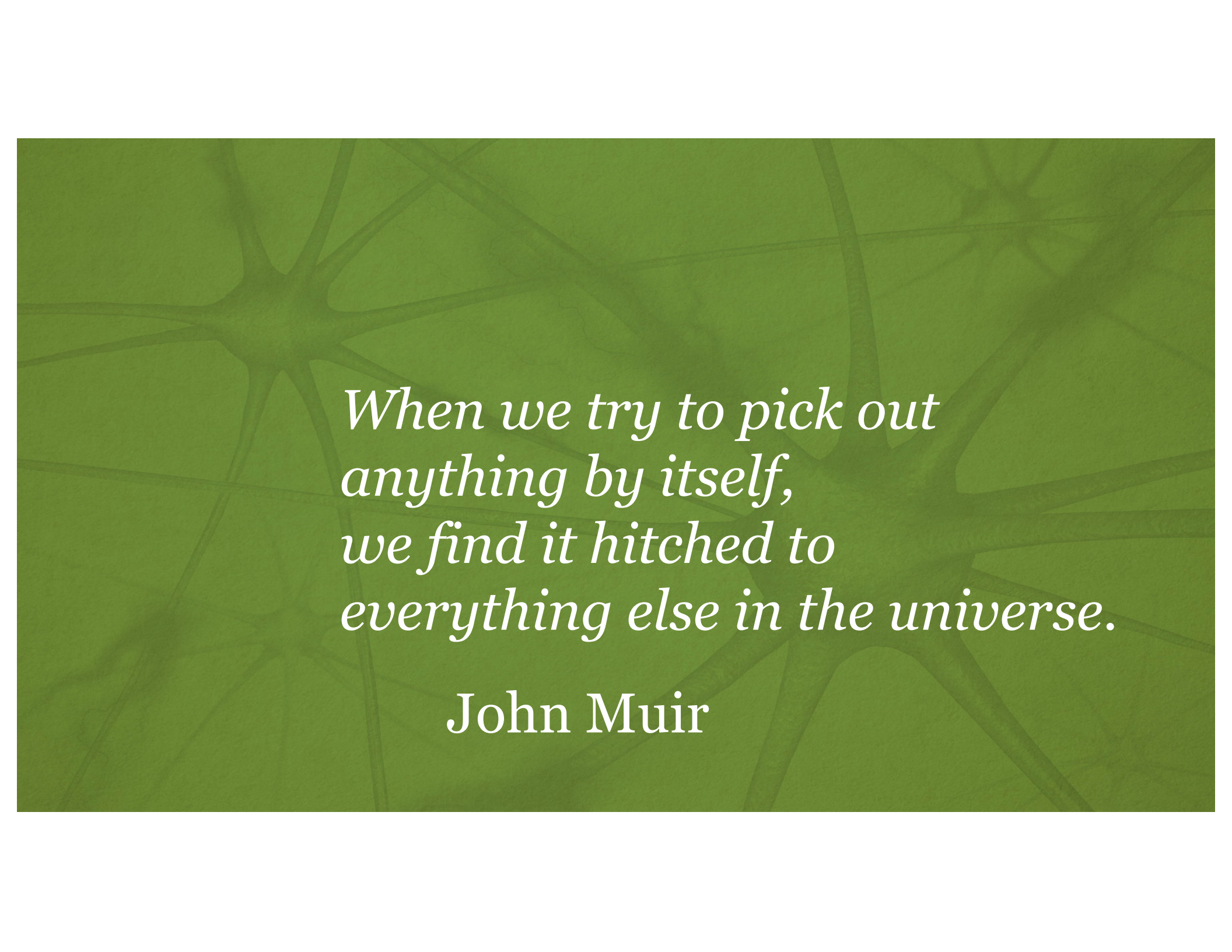
Opening into Allness

*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



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

John Muir

Egocentric Experiencing

Central organizing process of me-mine-I

The world related to oneself

Lower visual field

Doing-ness; goal-directed

Upper, midline cortical processing

More recent neural evolution

Allocentric Experiencing

Diffuse, distributed process of “personing”

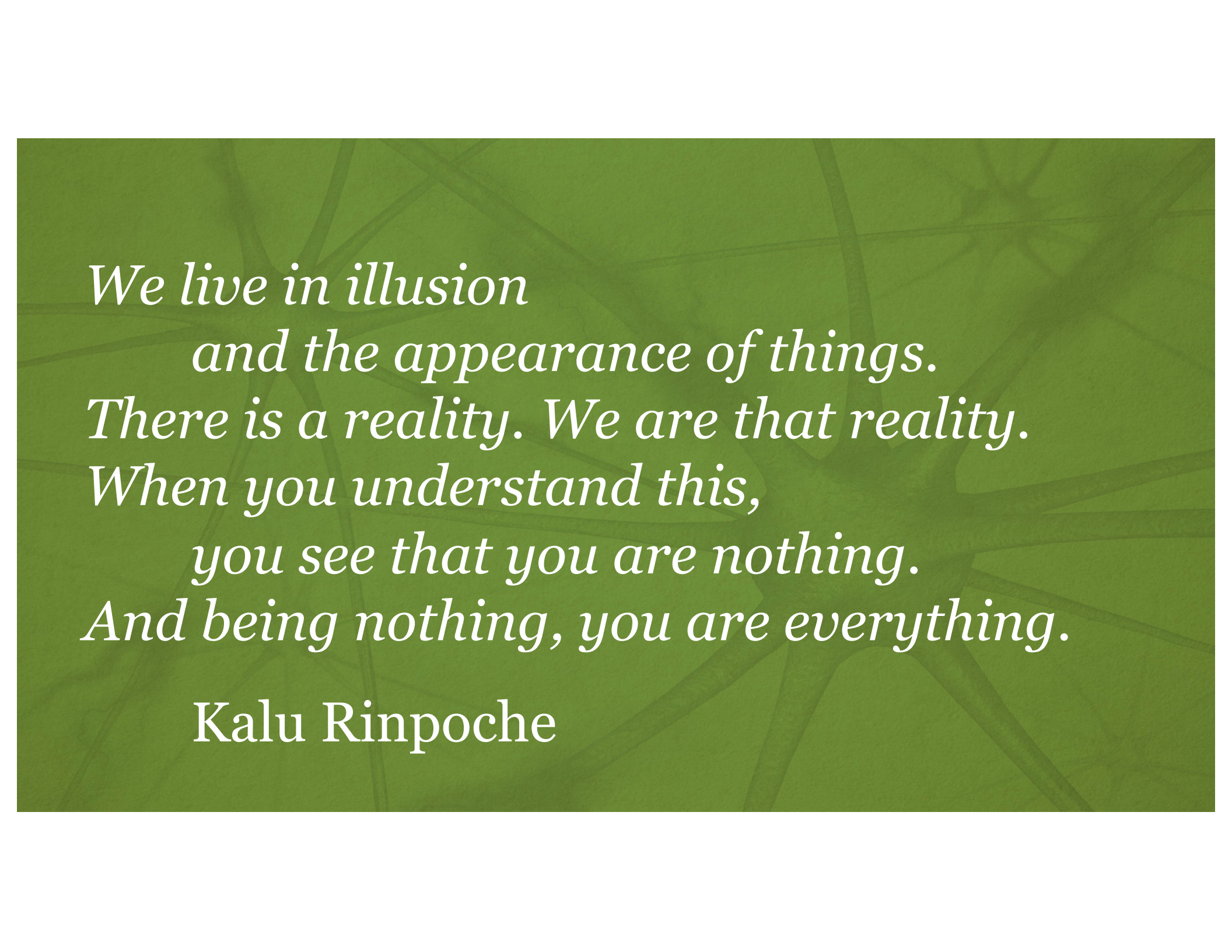
The world as it is, impersonally

Upper visual field

Being-ness; enoughness already

Lower, lateral cortical processing

More ancient regions of the brain



*We live in illusion
and the appearance of things.
There is a reality. We are that reality.
When you understand this,
you see that you are nothing.
And being nothing, you are everything.*

Kalu Rinpoche



Gradual cultivation

Sudden awakening

Gradual cultivation

Sudden awakening

Gradual cultivation . . .

Supporting Allocentric Experiencing

Fullness – nothing missing or wrong

Wholeness – wide inclusive awareness

Nowness – alerting, openness, surprise

Tranquility – GABA-regulated switches

Recognizing emptiness-connectedness:
eddy in the stream . . .

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



Finding Timelessness





*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

Three Kinds of Unconditioned

1. Deconditioning *from* habits of suffering, and opening *into* what is effectively unconditioned: awareness, stillness, possibility
2. An extraordinary state of being – “cessation” – within ordinary reality
3. (possibly) That which is distinct from the conditioned universe: not arising and passing away: thus timeless (& conscious? loving?)

Unconditioned Possibility

Disengaging from any particular experience

Opening into awareness, stillness, vastness

A sense of possibility . . . including what is
always just before the emergent edge of now

A recognition of mystery

Opening to timelessness



Pointing directly to the heart-mind

See your own nature

And become Buddha.

Hakuin



References

Suggested Books

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

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.

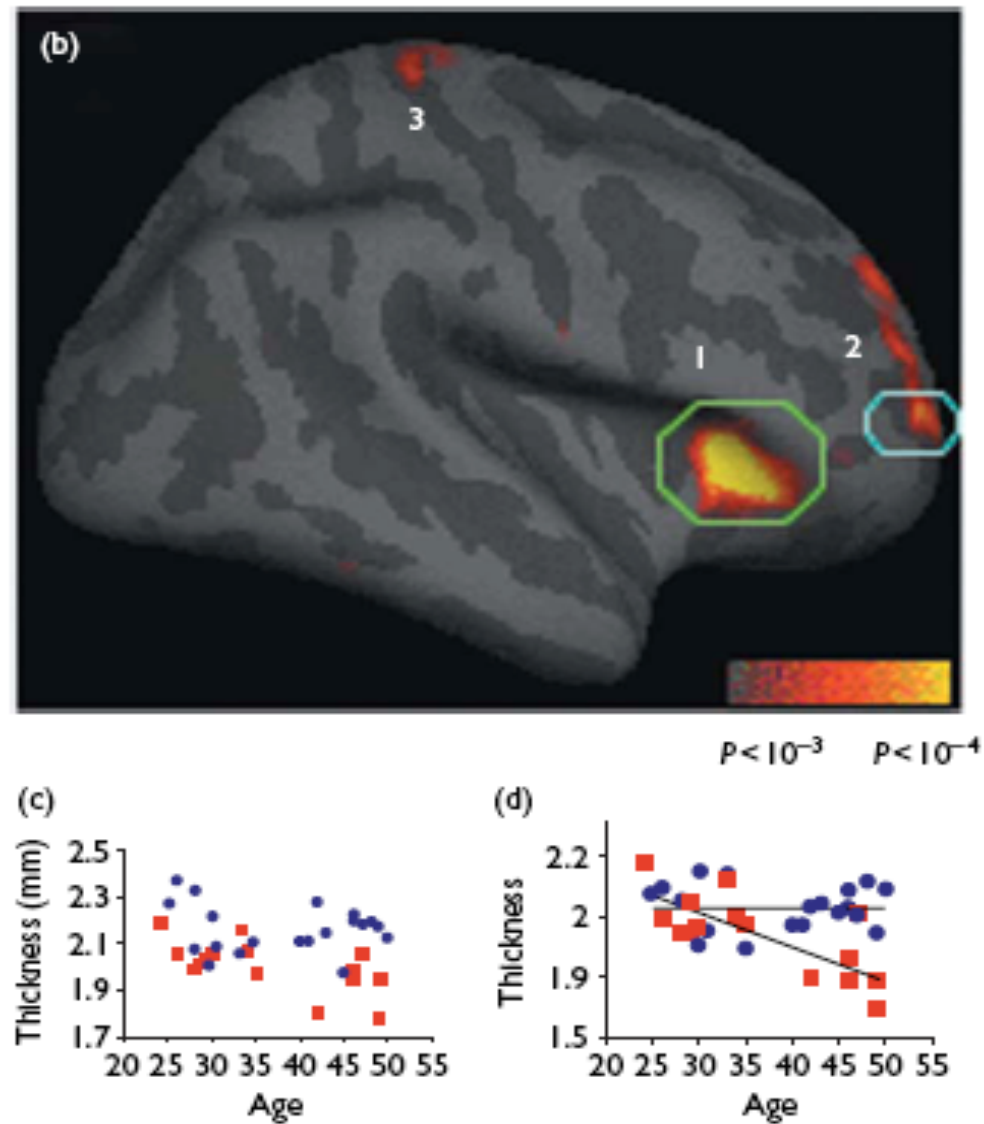
Scattered research on deliberate internal mental factors that lead to individual differences in gains from experiences.

“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.



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

Lao Tzu



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

Self-Compassion

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

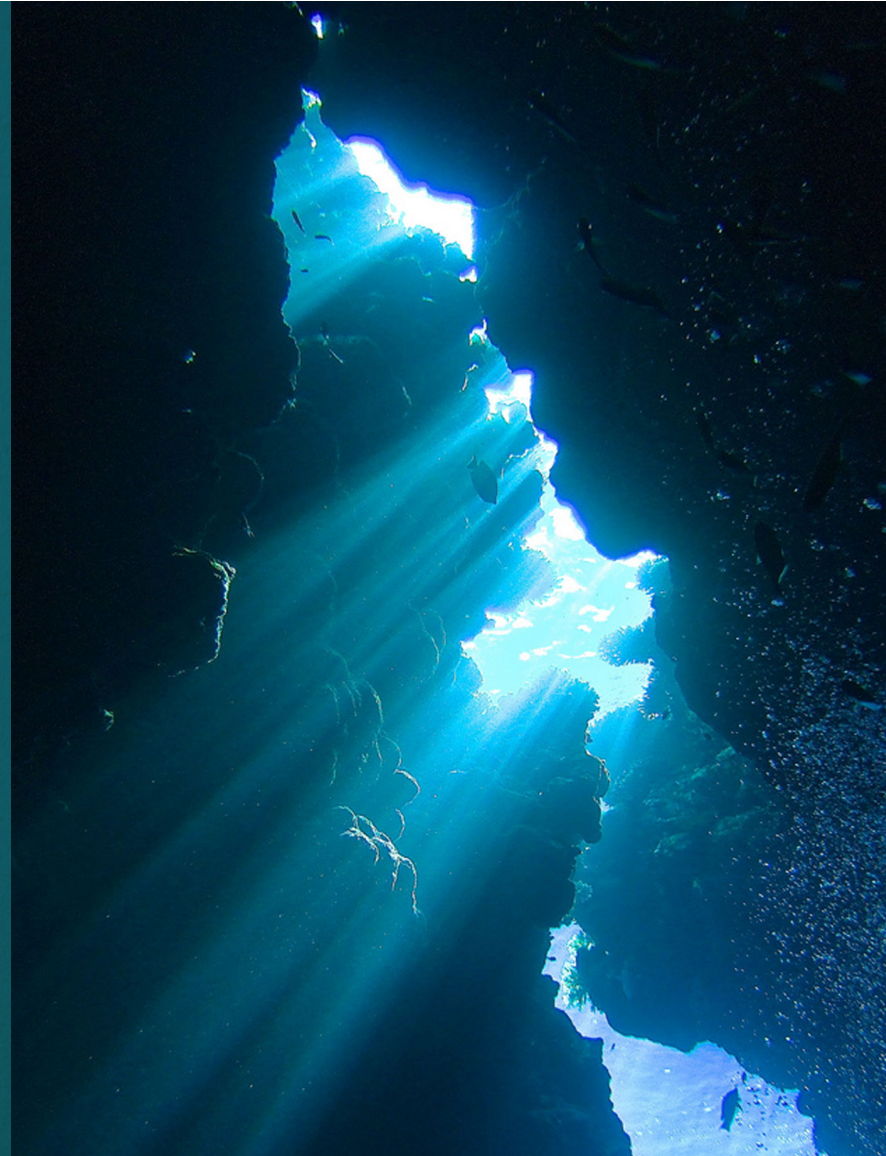
Bring to mind beings for whom you have compassion . . . Receive the sense of compassion into yourself . . . Know what compassion feels like.

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



Empathy Skills

- Pay attention.
- Be open.
- Read emotion in face and eyes.
- Sense beneath the surface.
- Drop aversion (judgments, distaste, fear, anger, withdrawal).
- Investigate actively.
- Express empathic understanding.

Our Three Fundamental Needs



Safety



Satisfaction



Connection

Meeting Our Three Fundamental Needs



Safety

Avoiding
harms

(threat response)



Satisfaction

Approaching
rewards

(goal pursuit)

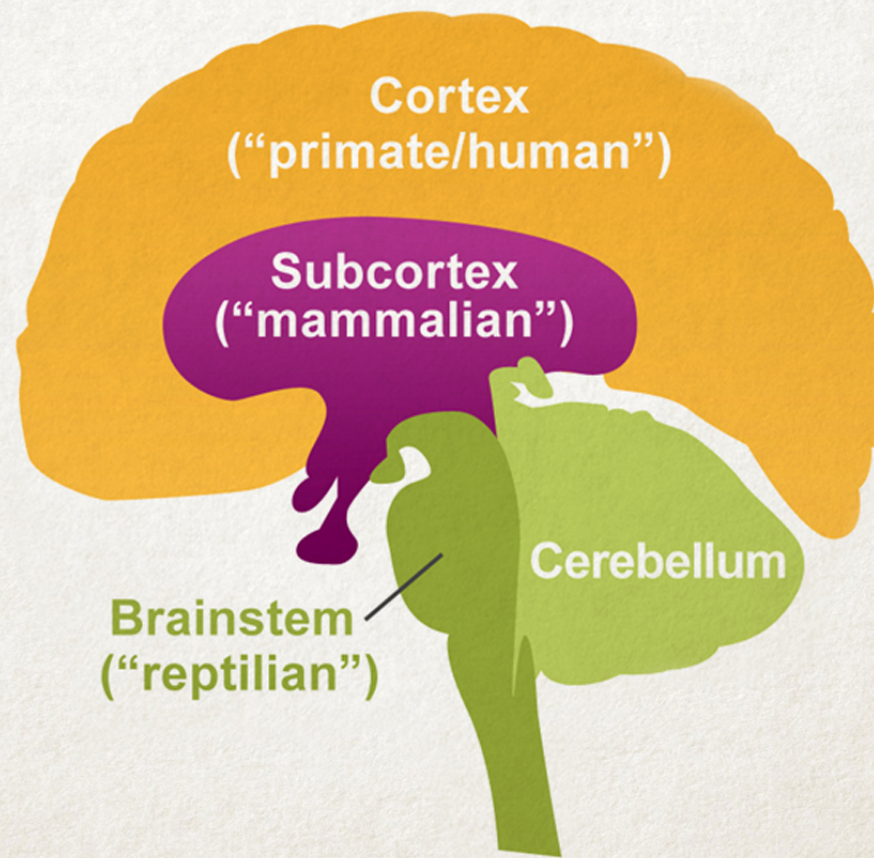


Connection

Attaching
to others

(social engagement)

The Evolving Brain



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



Pet the Lizard



Feed the Mouse



Hug the Monkey



The Parts and the Whole

Suffering is parts struggling with parts.
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.

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.

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 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.*

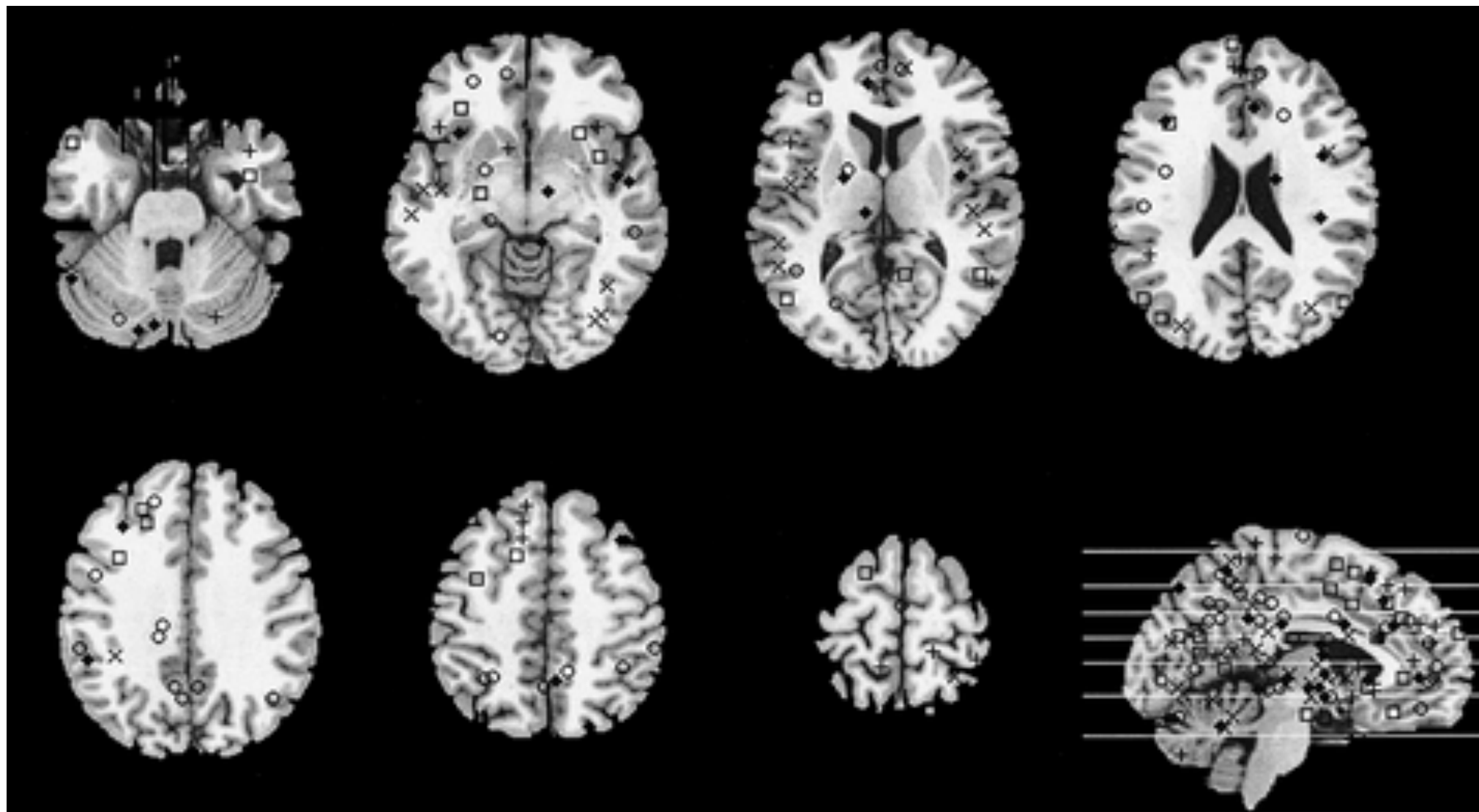
*When there is no you in connection with that, there is no
you there. When there is no you there, you are neither
here nor yonder nor between the two.*

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

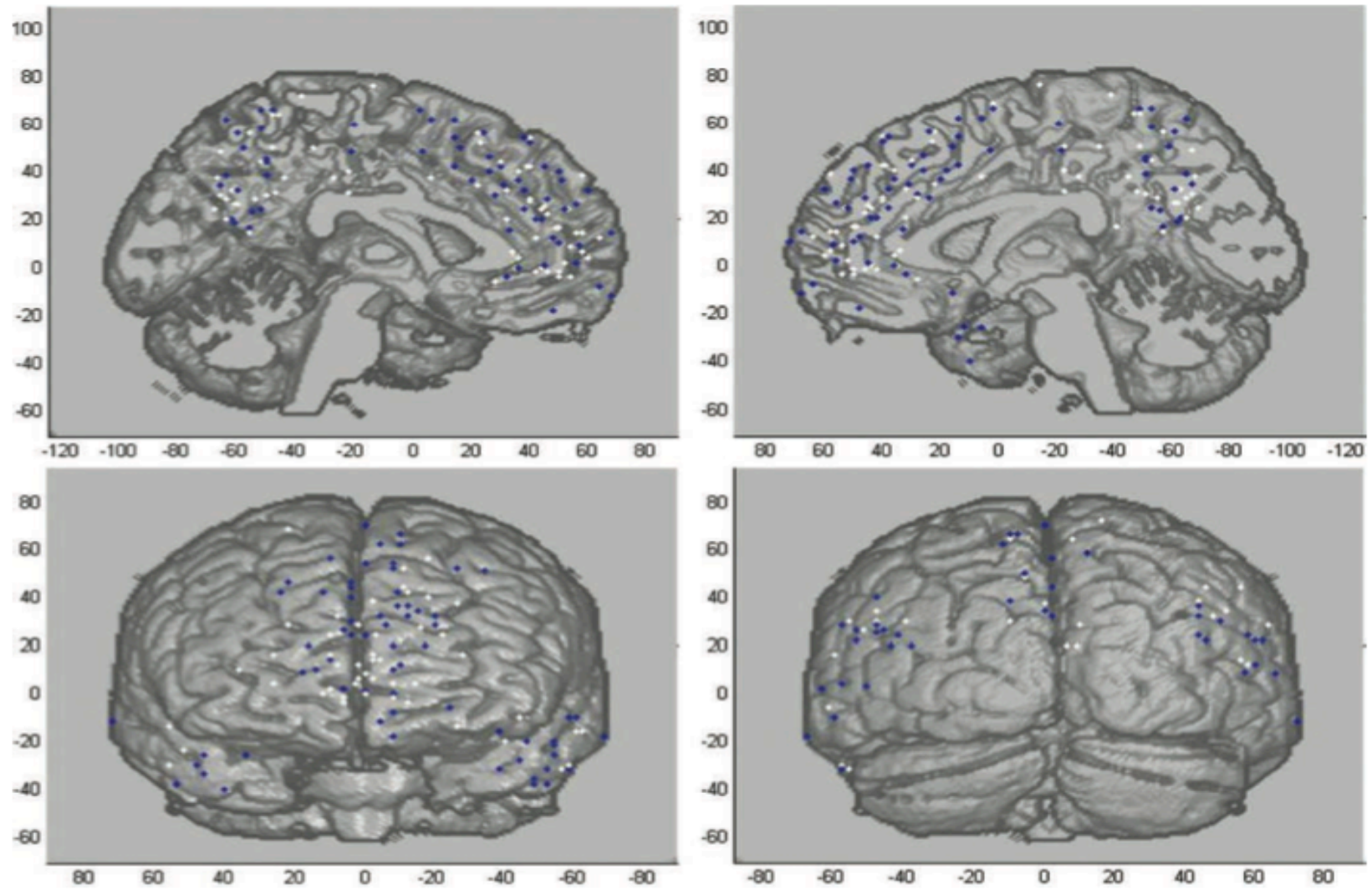
*Blissful is passionlessness in the world,
the overcoming of sensual desires.*

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

Udana 2.11



Gillihan, et al. 2005. *Psychological Bulletin*



Legrand & Ruby, 2009. *Psychological Review*

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.

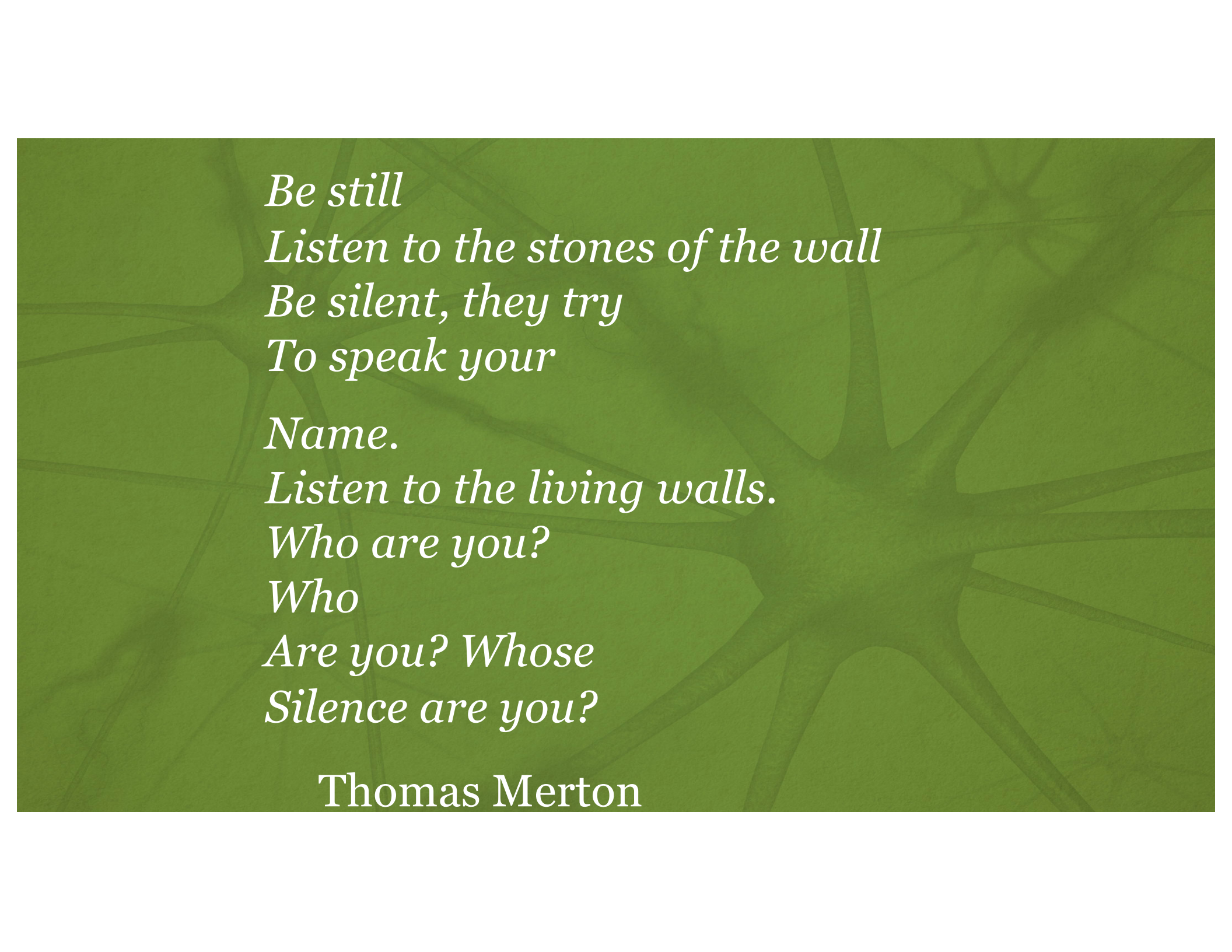
Allness as allness is always allness.

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

*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



*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