Taking in the Good:

The Mindful Internalization Of Positive Experiences In Implicit Memory

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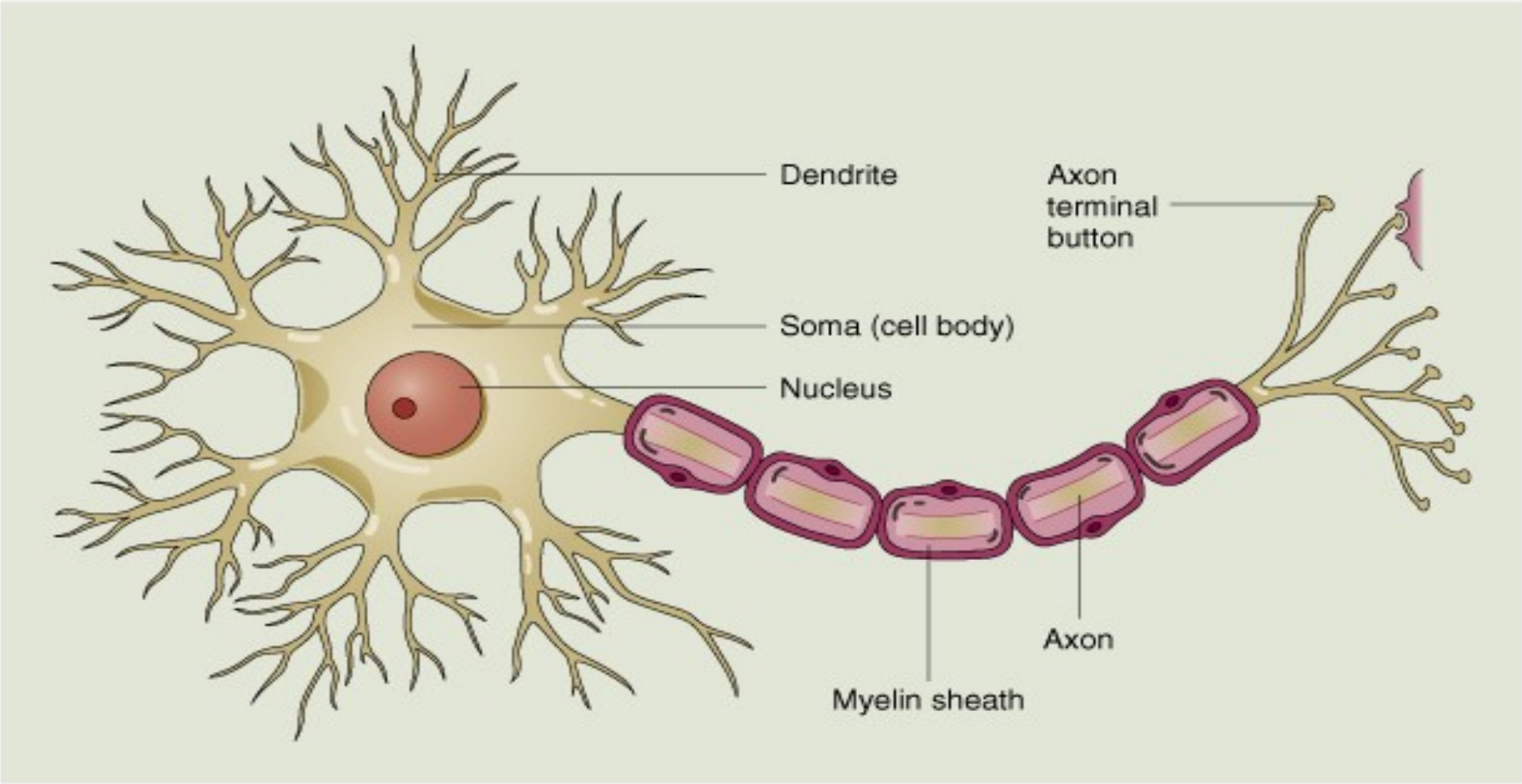
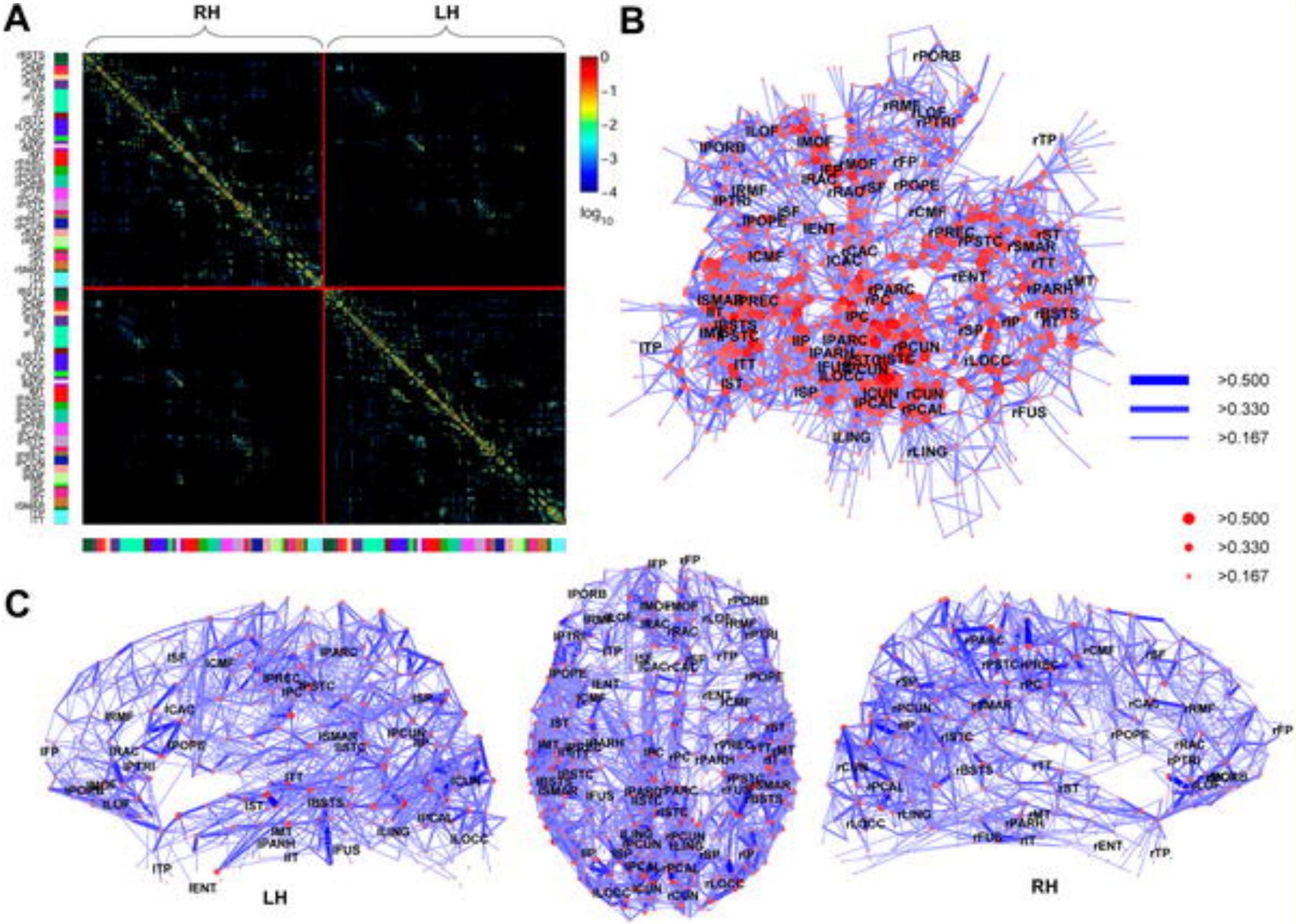
Topics

- Brain and mind
- The promise of self-directed neuroplasticity
- On your own side
- The evolving brain - and its challenges today
- The negativity bias
- Threat reactivity
- Implicit memory and inner resources
- “Taking in the good” (TIG)
- Using TIG to heal emotional pain
- Natural happiness

Brain and Mind

A Neuron





Hagmann, et al., 2008, *PLoS Biology,* 6:1479-1493

All cells have specialized functions. Brain cells have particular ways of processing information and communicating with each other. Nerve cells form complete circuits that carry and transform information.

Electrical signaling represents the language of mind, the means whereby nerve cells, the building blocks of the brain, communicate with one another over great distances. Nerve cells generate electricity as a means of producing messages.

All animals have some form of mental life that reflects the architecture of their nervous system.

Eric R. Kandel

The Mind/Brain System

- "Mind" = flow of information within the nervous system:
  - Information is <u>represented</u> by the nervous system.
  - Most mind is unconscious; awareness is an <u>aspect</u> of mind.
  - The headquarters of the nervous system is the brain.

- In essence then, apart from hypothetical transcendental factors, the mind *is* what the brain *does*.

- Brain = necessary, *proximally* sufficient condition for mind:
  - The brain depends on the nervous system, which intertwines with and depends on other bodily systems.
  - These systems in turn intertwine with and depend upon nature and culture, both presently and over time.
  - And as we'll see, the brain also depends on the mind.

Fact #1

<u>As your brain changes, your mind changes</u>.

Ways That Brain Can Change Mind

- For better:
  - A little caffeine: more alertness
  - Thicker insula: more self-awareness, empathy
  - More left prefrontal activation: more happiness
- For worse:
  - Intoxication; imbalances in neurotransmitters
  - Concussion, stroke, tumor, Alzheimer's
  - Cortisol-based shrinkage of hippocampus: less capacity for contextual memory

Fact #2

As your mind changes, your brain changes.

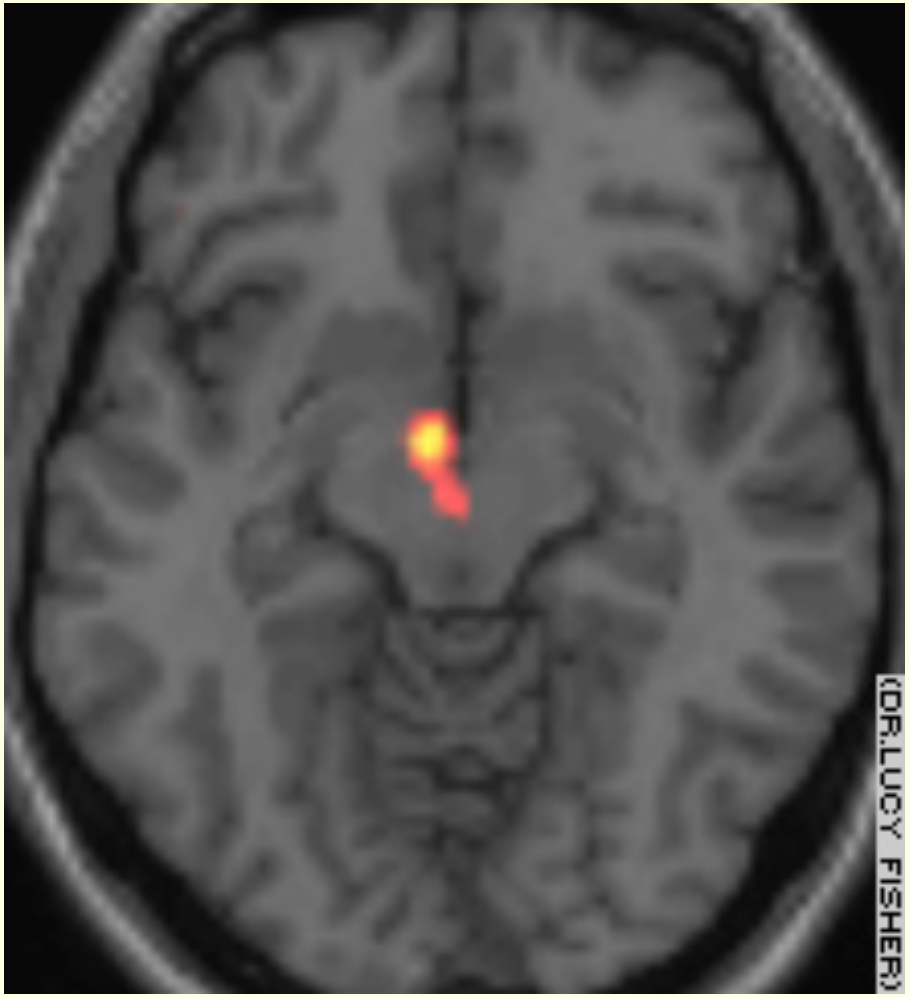
Immaterial mental activity maps to material neural activity.

This produces temporary changes in your brain and lasting ones.

Temporary changes include:

- Alterations in brainwaves (= changes in the firing patterns of synchronized neurons)
- Increased or decreased use of oxygen and glucose
- Ebbs and flows of neurochemicals

The Rewards of Love

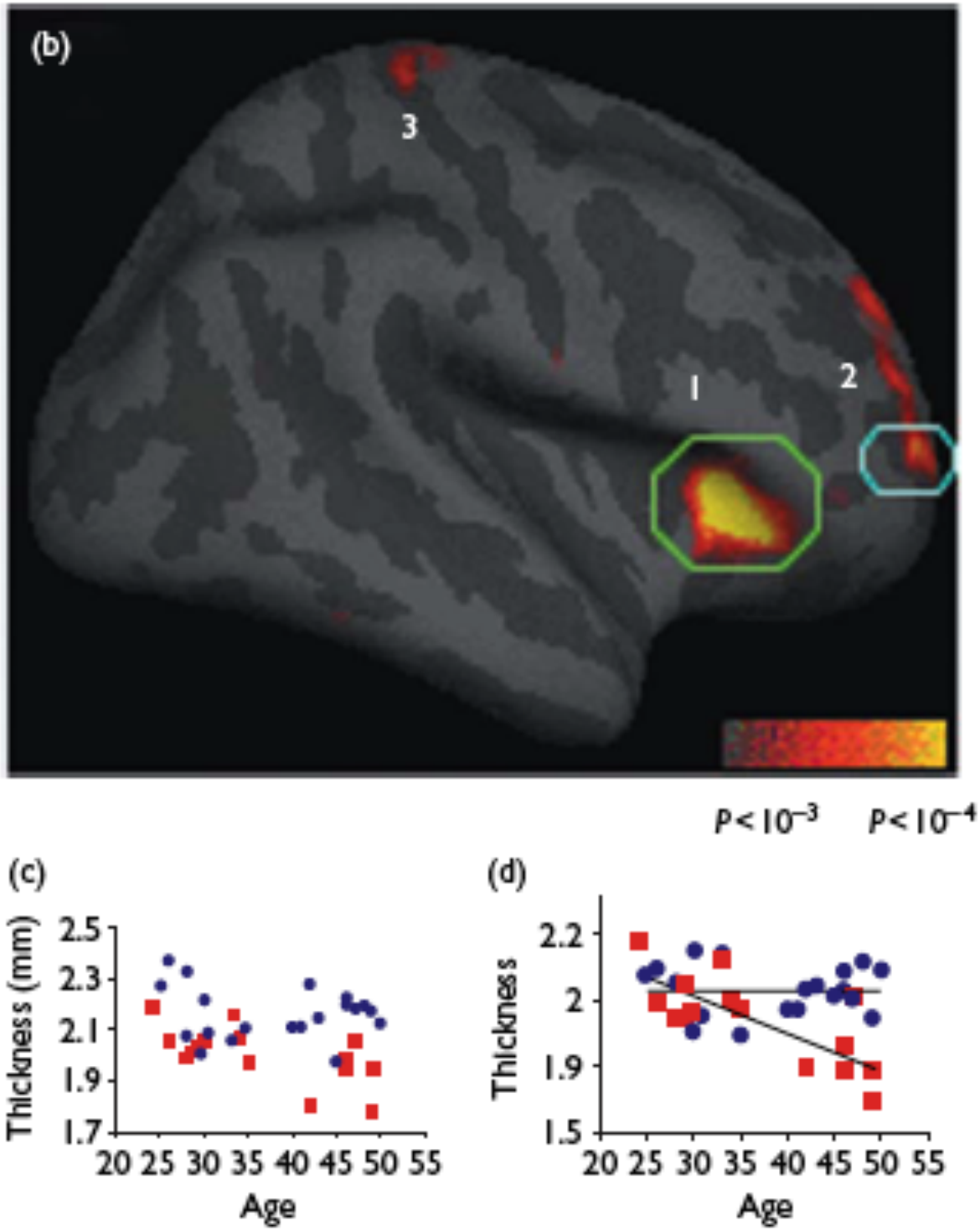


Tibetan Monk, Boundless Compassion

Mind Changes Brain in Lasting Ways

- What flows through the mind sculpts your brain. Immaterial experience leaves material traces behind.
- Increased blood/nutrient flow to active regions
- Altered epigenetics (gene expression)
- “Neurons that fire together wire together.”
  - Increasing excitability of active neurons
  - Strengthening existing synapses
  - Building new synapses; thickening cortex
  - Neuronal “pruning” - “use it or lose it”

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



Honoring Experience

One's experience *matters*.

Both for how it feels in the moment
and for the lasting residues it leaves behind,
woven into the fabric of a person's brain and being.

Fact #3

You can use your mind
to change your brain
to change your mind for the better.

This is self-directed neuroplasticity.

How to do this, in skillful ways?

The Power of Mindfulness

Why Mindfulness Matters

- Attention is like a spotlight, illuminating what it rests upon.
- Because neuroplasticity is heightened for what's in the field of focused awareness, attention is also like a vacuum cleaner, sucking its contents into the brain.
- Directing attention skillfully is therefore a fundamental way to shape the brain - and one's life over time.

The education of attention
would be an education par excellence.
William James

Basics of Meditation

- Relax
- Posture that is comfortable and alert
- Simple good will toward yourself
- Awareness of your body
- Focus on something to steady your attention
- Accepting whatever passes through awareness, not resisting it or chasing it
- Gently settling into peaceful well-being

Seven Neural Factors of Mindfulness

- **Setting an intention** - “top-down” frontal, “bottom-up” limbic
- **Relaxing the body** - parasympathetic nervous system
- **Feeling cared about** - social engagement system
- **Feeling safer** - inhibits amygdala/ hippocampus alarms
- **Encouraging positive emotion** - dopamine, norepinephrine
- **Panoramic view** - lateral networks
- **Absorbing the benefits** - positive implicit memories

Meditation - Neural Benefits

- Increased gray matter in the:
  - Insula - interoception; self-awareness; empathy for emotions
  - Hippocampus - visual-spatial memory; establishing context; inhibiting amygdala and cortisol
  - Prefrontal cortext (PFC) - executive functions; attention control
- Reduced cortical thinning with aging in insula and PFC
- Increased activation of left frontal regions, lifting mood
- Increased gamma-range brainwaves - may be associated with integration, “coming to singleness,” “unitary awareness”
- Preserved telomere length

Meditation: Physiological Benefits

- Decreases stress-related cortisol
- Stronger immune system
- Helps many medical conditions, including cardiovascular disease, asthma, type II diabetes, PMS, and chronic pain
- Aids wound healing and post-surgical recovery

Meditation: Psychological Benefits

- Improves attention (including for ADHD)
- Increases compassion
- Increases empathy
- Reduces insomnia, anxiety, phobias,eating disorders
- MBCT for depression decreases relapse

The good life, as I conceive it, is a happy life.

I do not mean that if you are good you will be happy;
I mean that if you are happy you will be good.

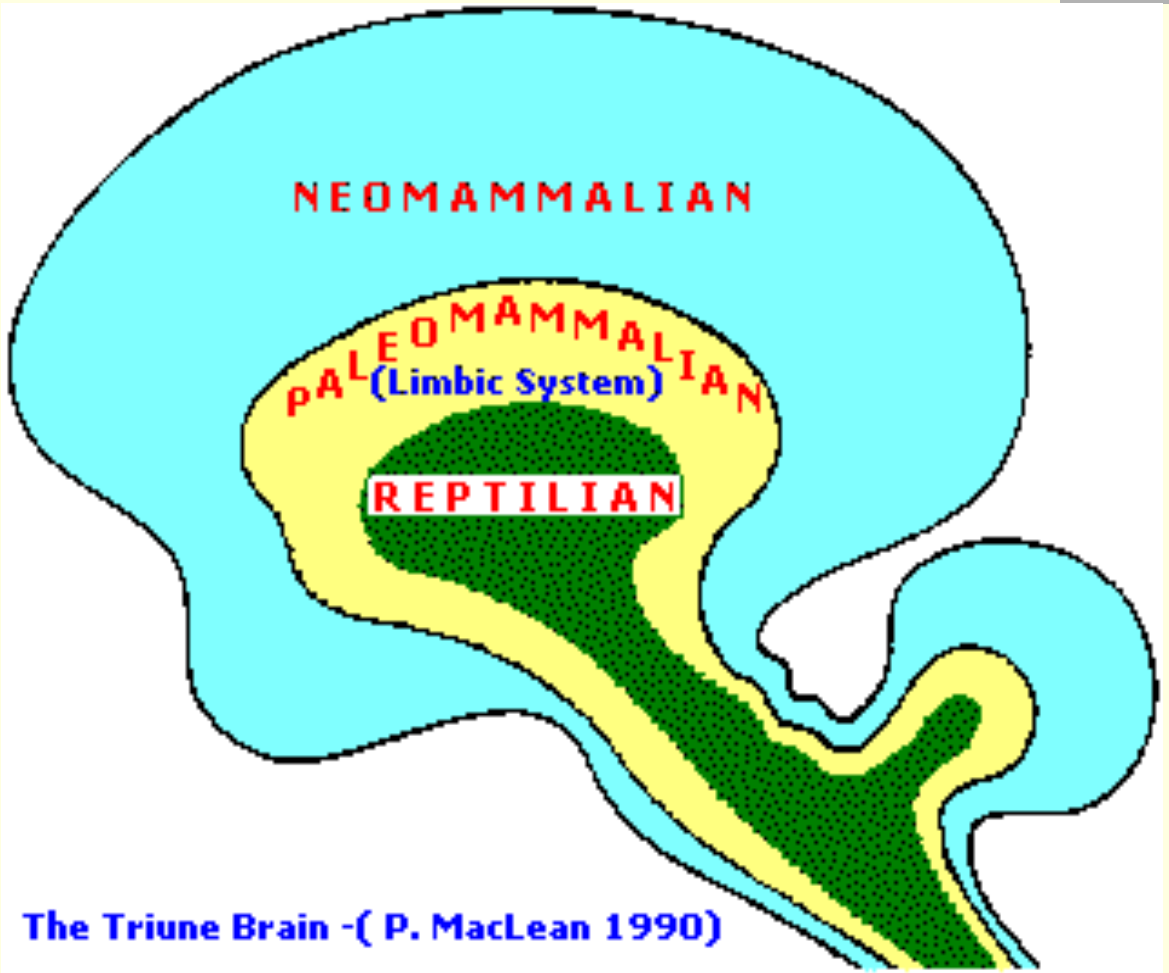
Bertrand Russell

The Evolving Brain - and Its Challenges

Evolution

- ~ 4+ billion years of earth
- 3.5 billion years of life
- 650 million years of multi-celled organisms
- 600 million years of nervous system
- ~ 200 million years of mammals
- ~ 60 million years of primates
- ~ 6 million years ago: last common ancestor with chimpanzees, our closest relative among the “great apes” (gorillas, orangutans, chimpanzees, bonobos, humans)
- 2.5 million years of tool-making (starting with brains 1/3 our size)
- ~ 150,000 years of *homo sapiens*
- ~ 50,000 years of modern humans
- ~ 5000 years of blue, green, hazel eyes

Evolutionary History



The Triune Brain

Three Stages of Brain Evolution

- **Reptilian:**
  - Brainstem, cerebellum, hypothalamus
  - Reactive and reflexive
  - **Avoid** hazards
- **Mammalian:**
  - Limbic system, cingulate, early cortex
  - Memory, emotion, social behavior
  - **Approach** rewards
- **Human:**
  - Massive cerebral cortex
  - Abstract thought, language, cooperative planning, empathy
  - **Attach** to “us”

"With all due respects, I find your disparaging remarks about the 'reptilian brain' unnecessary"

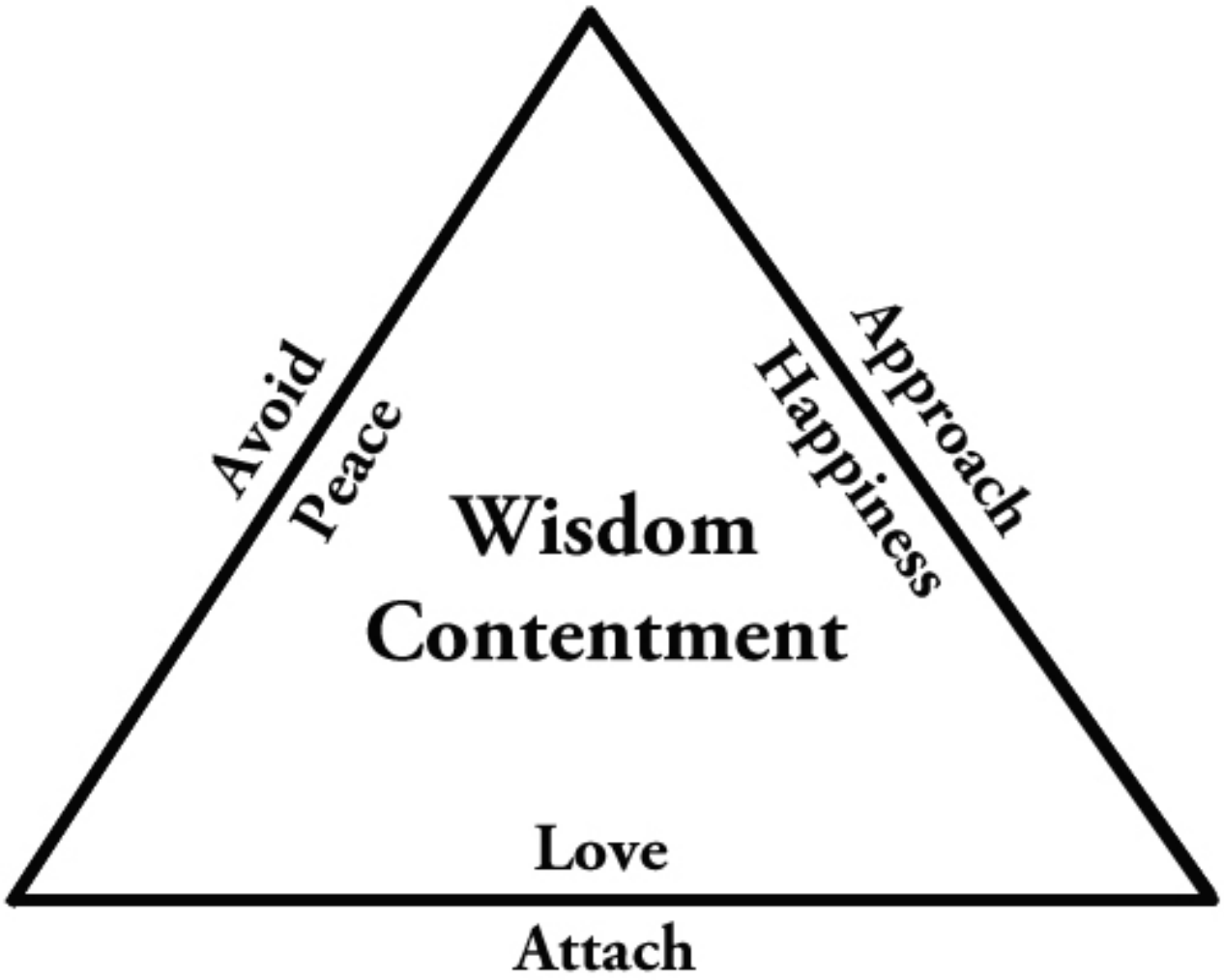
Home Base of the Human Brain

When not threatened, ill, in pain, hungry, upset, or chemically disturbed, most people settle into being:

- **Peaceful** (the Avoid system)
- **Happy** (the Approach system)
- **Loving** (the Attach system)

This is the brain in its natural, ***responsive*** mode.

The Responsive Mode



Some Benefits of Responsive Mode

- Recovery from “mobilizations” for survival:
  - Refueling after depleting outpourings
  - Restoring equilibrium to perturbed systems
  - Reinterpreting negative events in a positive frame
  - Reconciling after separations and conflicts

- Promotes prosocial behaviors:
  - Experiencing safety decreases aggression.
  - Experiencing sufficiency decreases envy.
  - Experiencing connection decreases jealousy.
  - We’re more generous when our own cup runneth over.

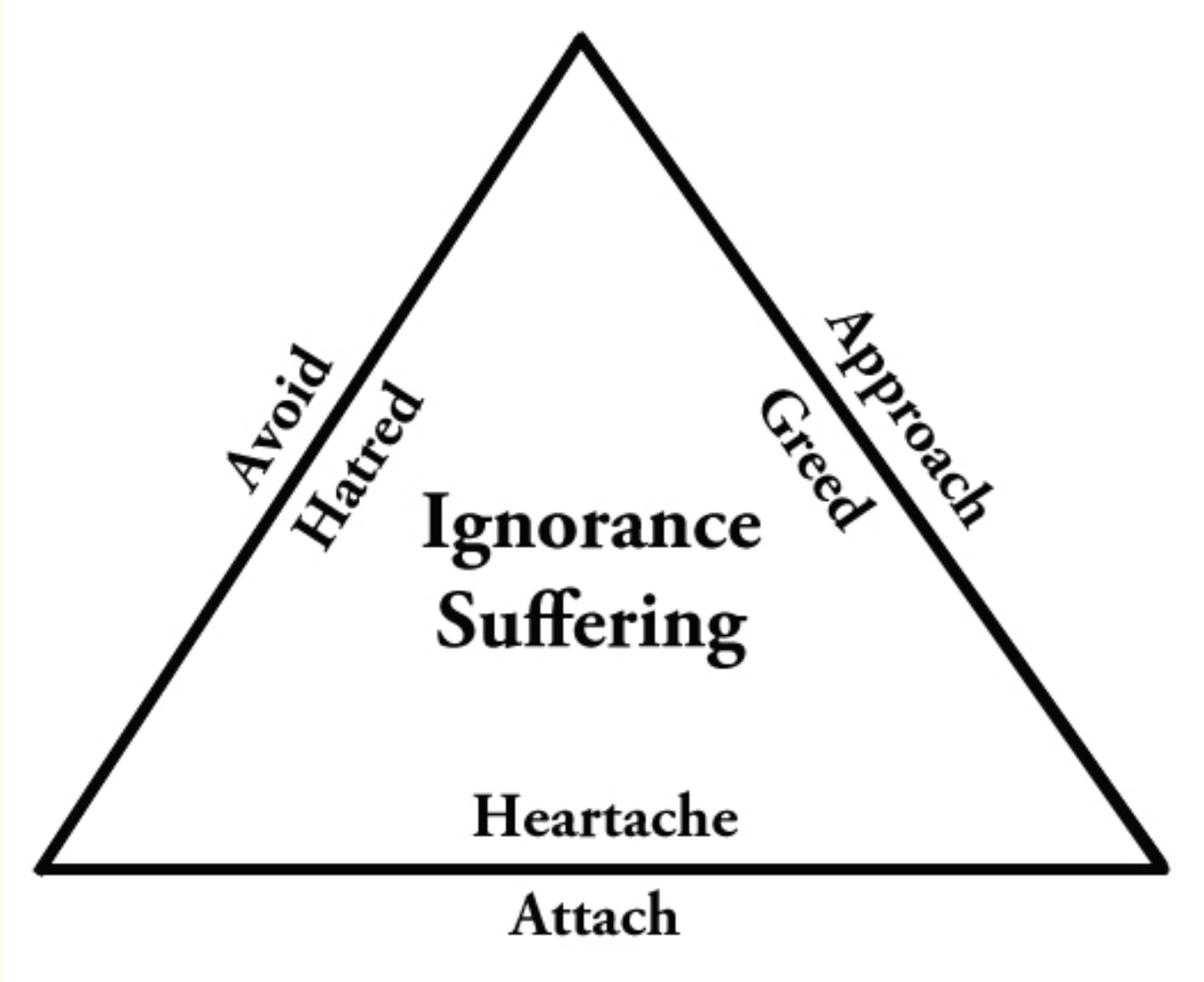
But to Cope with Urgent Needs, We Leave Home . . .

- **Avoid**: When we feel threatened or harmed
- **Approach**: When we can't attain important goals
- **Attach**: When we feel isolated, disconnected, unseen, unappreciated, unloved

This is the brain in its ***reactive*** mode of functioning

- a kind of inner homelessness.

The Reactive Mode



Reactive Dysfunctions in Each System

- **Avoid** - Anxiety disorders; PTSD; panic, terror; rage; violence
- **Approach** - Addiction; over-drinking, -eating, -gambling; compulsion; hoarding; driving for goals at great cost; spiritual materialism
- **Attach** - Borderline, narcissistic, antisocial PD; symbiosis; *folie a deux*; “looking for love in all the wrong places”

The Negativity Bias

Negativity Bias: Causes in Evolution

- "Sticks" - Predators, natural hazards, social aggression, pain (physical and psychological)
- "Carrots" - Food, sex, shelter, social support, pleasure (physical and psychological)
- During evolution, avoiding "sticks" usually had more effects on survival than approaching "carrots."
  - Urgency - Usually, sticks must be dealt with immediately, while carrots allow a longer approach.
  - Impact - Sticks usually determine mortality, carrots not; if you fail to get a carrot today, you'll likely have a chance at a carrot tomorrow; but if you fail to avoid a stick today - whap! - no more carrots forever.

Negativity Bias: Some Consequences

- Negative stimuli get more attention and processing.
- We generally learn faster from pain than pleasure.
- People work harder to avoid a loss than attain an equal gain (“endowment effect”)
- Easy to create learned helplessness, hard to undo
- Negative interactions: more powerful than positive
- Negative experiences sift into implicit memory.

Negative Experiences Can Have Benefits

- There's a place for negative emotions:
  - Anxiety alerts us to inner and outer threats
  - Sorrow opens the heart
  - Remorse helps us steer a virtuous course
  - Anger highlights mistreatment; energizes to handle it
- Negative experiences can:
  - Increase tolerance for stress, emotional pain
  - Build grit, resilience, confidence
  - Increase compassion and tolerance for others

But is there really any shortage of negative experiences?

Health Consequences of Chronic Stress

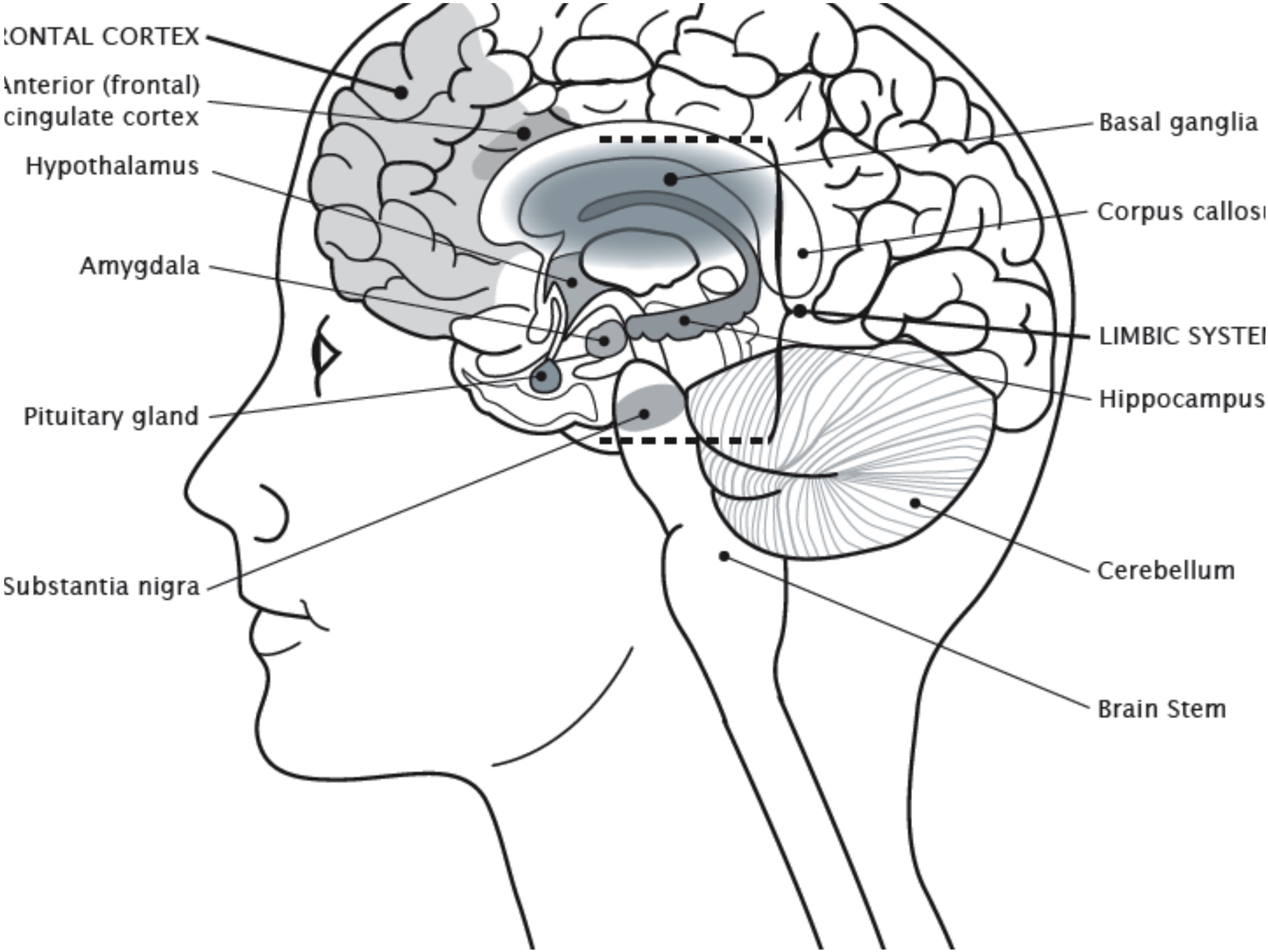
- Physical:
  - Weakened immune system
  - Inhibits GI system; reduced nutrient absorption
  - Reduced, dysregulated reproductive hormones
  - Increased vulnerabilities in cardiovascular system
  - Disturbed nervous system

- Mental:
  - Lowers mood; increases pessimism
  - Increases anxiety and irritability
  - Increases learned helplessness (especially if no escape)
  - Often reduces approach behaviors (less for women)
  - Primes aversion (SNS-HPAA negativity bias)

One Neural Consequence of Negative Experiences

- Amygdala (“alarm bell”) initiates stress response
- Hippocampus:
  - Forms and retrieves contextual memories
  - Inhibits the amygdala
  - Inhibits cortisol production
- Cortisol:
  - Stimulates and sensitizes the amygdala
  - Inhibits and can shrink the hippocampus

- Consequently, chronic negative experiences:
  - Sensitize the amygdala alarm bell
  - Weaken the hippocampus: this reduces memory capacities and the inhibition of amygdala and cortisol production.
  - Thus creating vicious cycles in the NS, behavior, and mind


RONTAL CORTEX
Anterior (frontal)
cingulate cortex
Hypothalamus
Amygdala
Pituitary gland
Substantia nigra
Basal ganglia
Corpus callos
LIMBIC SYSTE
Hippocampus
Cerebellum
Brain Stem

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Threat Reactivity

A Major Result of the Negativity Bias: Threat Reactivity

- Two mistakes:
  - Thinking there is a tiger in the bushes when there isn't one.
  - Thinking there is no tiger in the bushes when there is one.
- We evolved to make the first mistake a hundred times to avoid making the second mistake even once.
- This evolutionary tendency is intensified by temperament, personal history, culture, and politics.
- Threat reactivity affects individuals, couples, families, organizations, nations, and the world as a whole.

Results of Threat Reactivity
(Personal, Organizational, National)

- Our initial appraisals are mistaken:
  - Overestimating threats
  - Underestimating opportunities
  - Underestimating inner and outer resources
- We update these appraisals with information that confirms them; we ignore, devalue, or alter information that doesn't.
- Thus we end up with views of ourselves, others, and the world that are ignorant, selective, and distorted.

Costs of Threat Reactivity
(Personal, Organizational, National)

- Feeling threatened feels bad, and triggers stress consequences.
- We over-invest in threat protection.
- The boy who cried tiger: flooding with paper tigers makes it harder to see the real ones.
- Acting while feeling threatened leads to over-reactions, makes others feel threatened, and creates vicious cycles.
- The Approach system is inhibited, so we don't pursue opportunities, play small, or give up too soon.
- In the Attach system, we bond tighter to "us," with more fear and anger toward "them."

A Poignant Truth

Mother Nature is tilted toward producing gene copies.

But tilted against personal quality of life.

And at the societal level, we have caveman/cavewoman brains armed with nuclear weapons.

What shall we do?

We can deliberately use the mind

to change the brain for the better.

Implicit Memory and Inner Resources

Learning and Memory

- The sculpting of the brain by experience is memory:
  - Explicit - Personal recollections; semantic memory
  - Implicit - Bodily states; emotional residues; “views” (expectations, object relations, perspectives); behavioral repertoire and inclinations; what it feels like to be “me”

- Implicit memory is much larger than explicit memory. Resources are embedded mainly in implicit memory.

- Therefore, the key target is implicit memory. So what matters most is not the explicit recollection of positive *events* but the implicit emotional residue of positive *experiences*.

The Importance of Inner Resources

- Examples:
  - Freud's "positive introjects"
  - Internalization of "corrective emotional experiences" during psychotherapy
  - "Learned optimism"

- Benefits
  - Increase positive emotions: many physical and mental health benefits
  - Improve self-soothing
  - Improve outlook on world, self, and future
  - Increase resilience, determination

In essence, how can we actively internalize resources in implicit memory - making the brain like Velcro for positive experiences, but Teflon for negative ones?

Taking in the Good

Just <u>having</u> positive experiences is not enough.

They pass through the brain like water through a sieve, while negative experiences are caught.

We need to engage positive experiences actively to weave them into the brain.

Being with, Releasing, Replacing

- There are three phases of psychological healing and personal growth (and spiritual practice):
  - Be mindful of, release, replace.
  - Let be, let go, let in.

- Mindfulness is key to the second and third phase, sometimes curative on its own, and always beneficial in strengthening its neural substrates. But often it is not enough by itself.

- And sometimes you need to skip to the third phase to build resources for mindfulness.

How to Take in the Good

1. Look for positive **facts,** and let them become positive experiences.

2. Savor the positive experience:
   - Sustain it for 10-20-30 seconds.
   - Feel it in your body and emotions.
   - Intensify it.

3. Sense and intend that the positive experience is soaking into your brain and body - registering deeply in emotional memory.

Targets of TIG

- Bodily states - healthy arousal; PNS; vitality
- Emotions - both feelings and mood
- Views - expectations; object relations; perspectives on self, world, past and future
- Behaviors - reportoire; inclinations

Kinds of "Good" to Take in

- The small pleasures of ordinary life
- The satisfaction of attaining goals or recognizing accomplishments - especially small, everyday ones
- Feeling grateful, contented, and fulfilled

- Things are alright; nothing is wrong; there is no threat
- Feeling safe and strong
- The peace and relief of forgiveness

- Being included, valued, liked, respected, loved by others
- The good feelings that come from being kind, fair, generous
- Feeling loving

- Recognizing your positive character traits
- Spiritual or existential realizations

Why It's Good to Take in the Good

- Rights an unfair imbalance, given the negativity bias
- Gives oneself today the caring and support one should have received as a child, but perhaps didn't get in full measure; an inherent, implicit benefit
- Increases positive resources, such as:
  - Positive emotions
  - Capacity to manage stress and negative experiences
- Can help bring in missing "supplies" (e.g., love, strength, worth)
- Can help painful, even traumatic experiences

Promoting Client Motivation

- During therapy, but mainly between sessions, notice:
  - When learning from therapy works well
  - New insights
  - When things happen consistent with therapist's realistic view of you, the world, the future
  - Good qualities in yourself emphasized by therapist
- Then practice three, sometimes four, steps of TIG.
- Can be formalized in daily reflections, journaling
- In general: take appropriate risks of "dreaded experiences," notice the (usually) good results, and then take those in.

TIG and Children

- All kids benefit from TIG.
- Particular benefits for mistreated, anxious, spirited/ ADHD, or LD children.
- Adaptations:
  - Brief
  - Concrete
  - Natural occasions (e.g., bedtimes)

Potential Synergies of TIG and MBSR

- Improved mindfulness from MBSR enhances TIG.
- TIG increases general resources for MBSR (e.g., heighten the PNS activation that promotes stable attention).
- TIG increases specific factors of MBSR (e.g., self-acceptance, self-compassion, tolerance of negative affect)
- TIG heightens internalization of key MBSR experiences:
  - The sense of stable mindfulness itself
  - Confidence that awareness itself is not in pain, upset, etc.
  - Presence of supportive others (e.g., MBSR groups)
  - Peacefulness of realizing that experiences come and go

Healing Old Pain

Using Memory Mechanisms to Help Heal Painful Experiences

- The machinery of memory:
  - When explicit or implicit memory is re-activated, it is re-built from schematic elements, not retrieved *in toto*.
  - When attention moves on, elements of the memory get re-consolidated.
- The open processes of memory activation and consolidation create a window of opportunity for shaping your internal world.
- Activated memory tends to associate with other things in awareness (e.g., thoughts, sensations), esp. if they are prominent and lasting.
- When memory goes back into storage, it takes associations with it.
- You can imbue implict and explicit memory with positive associations.

The Fourth Step of TIG

- When you are having a positive experience:
  - Sense the current positive experience sinking down into old pain, and soothing and replacing it.
- When you are having a negative experience:
  - Bring to mind a positive experience that is its antidote.
- In both cases, have the positive experience be big and strong, in the forefront of awareness, while the negative experience is small and in the background.
- You are not resisting negative experiences or getting attached to positive ones. You are being kind to yourself and cultivating positive resources in your mind.

Psychological Antidotes

Approaching Opportunities

- Satisfaction, fulfillment --> Frustration, disappointment
- Gladness, gratitude --> Sadness, discontentment, “blues”

Affiliating with “Us”

- Attunement, inclusion --> Not seen, rejected, left out
- Recognition, acknowledgement --> Inadequacy, shame
- Friendship, love --> Abandonment, feeling unloved or unlovable

Avoiding Threats

- Strength, efficacy --> Weakness, helplessness, pessimism
- Safety, security --> Alarm, anxiety
- Compassion for oneself and others --> Resentment, anger

The Tip of the Root

- For the fourth step of TIG, try to get at the youngest, most vulnerable layer of painful material.
- The “tip of the root” is commonly in childhood. In general, the brain is most responsive to negative experiences in early childhood.
- Prerequisites
  - Understanding the need to get at younger layers
  - Compassion and support for the inner child
  - Capacity to “presence” young material without flooding

TIG and Trauma

- General considerations:
  - People vary in their resources and their traumas.
  - Often the major action is with “failed protectors.”
  - Cautions for awareness of internal states, including positive
  - Respect “yellow lights” and the client’s pace.

- The first three steps of TIG are generally safe. Use them to build resources for tackling the trauma directly.

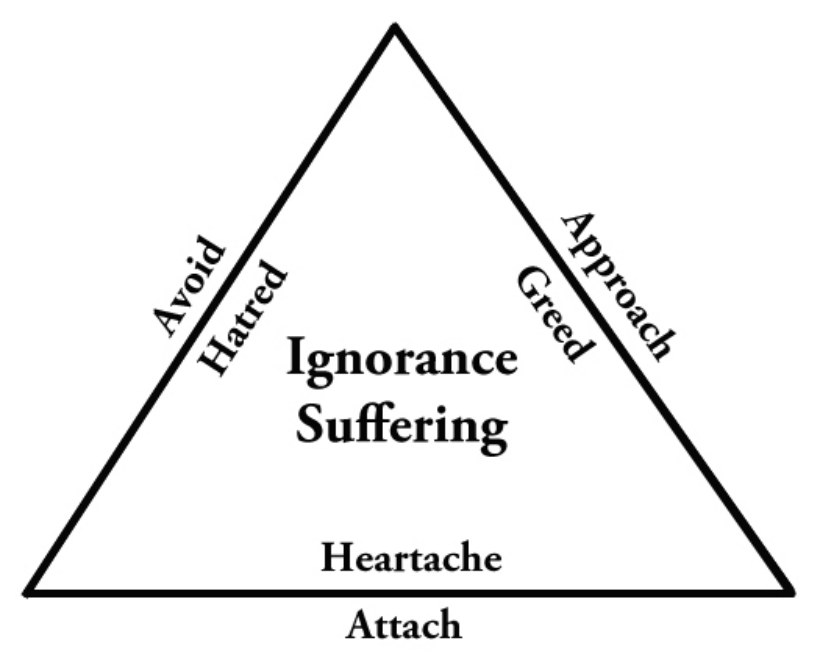
- As indicated, use the fourth step of TIG to address the <u>peripheral</u> features and themes of the trauma.

- Then, with care, use the fourth step to get at the heart of the trauma.

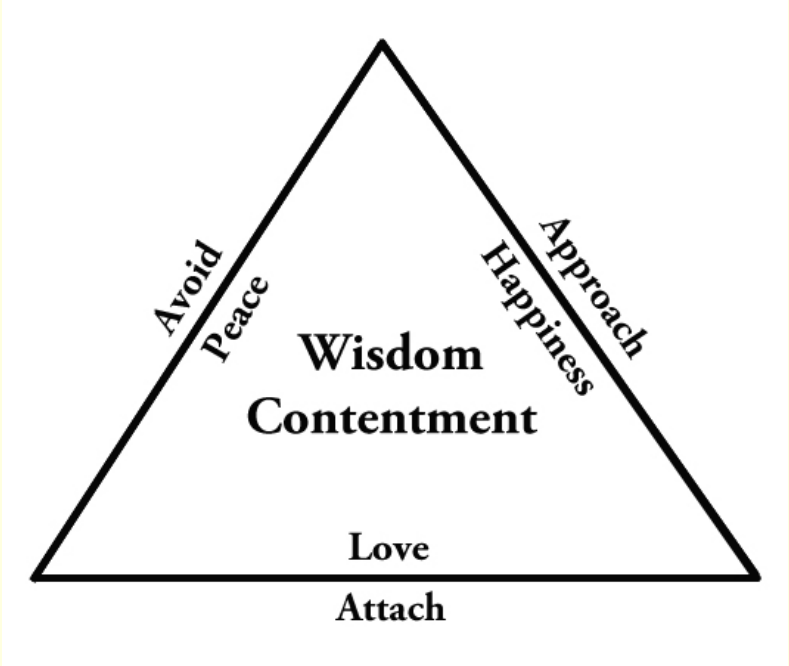
First of all, do no harm.

Natural Happiness

Choices . . .



Or?



Reactive Mode

Responsive Mode

Coming Home . . .

Peaceful

Happy

Loving

Penetrative insight

joined with calm abiding

utterly eradicates

afflicted states.

Shantideva

Great Books

See www.RickHanson.net for other great books.

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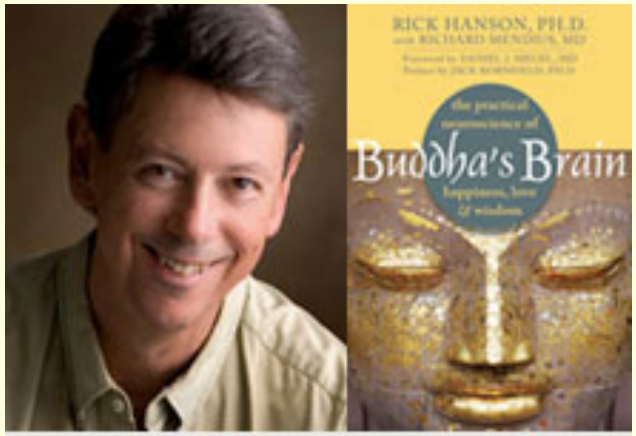

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