WHAT

HAPPENED

TO YOU?

C O N V E R S A T I O N S O N T R A U M A , R E S I L I E N C E , A N D H E A L I N G

B R U C E D . P E R R Y , M . D . , P h . D .

O P R A H W I N F R E Y

P U B L I S H E D B Y

P R O D U C E D B Y

NEW YORK

A l s o b y

B r u c e D . P e r r y , M . D . , P h . D .

The Boy Who Was Raised as a Dog: And Other Stories from a Child Psychiatrist's Notebook (with Maia Szalavitz) Brief: Reflections on Childhood, Trauma, and Society Born for Love: Why Empathy Is Essential—and Endangered (with Maia Szalavitz)

A l s o b y O p r a h W i n f r e y *The Path Made Clear: Discovering Your Life's Direction and Purpose*

The Wisdom of Sundays: Life-Changing Insights from Super Soul Conversations

Food, Health, and Happiness: 115 On-Point Recipes for Great Meals and a Better Life

What I Know for Sure

In the discussions of Dr. Perry's clients, all names and many identifying details have been changed, and some discussions include a conflation of clinical situations.

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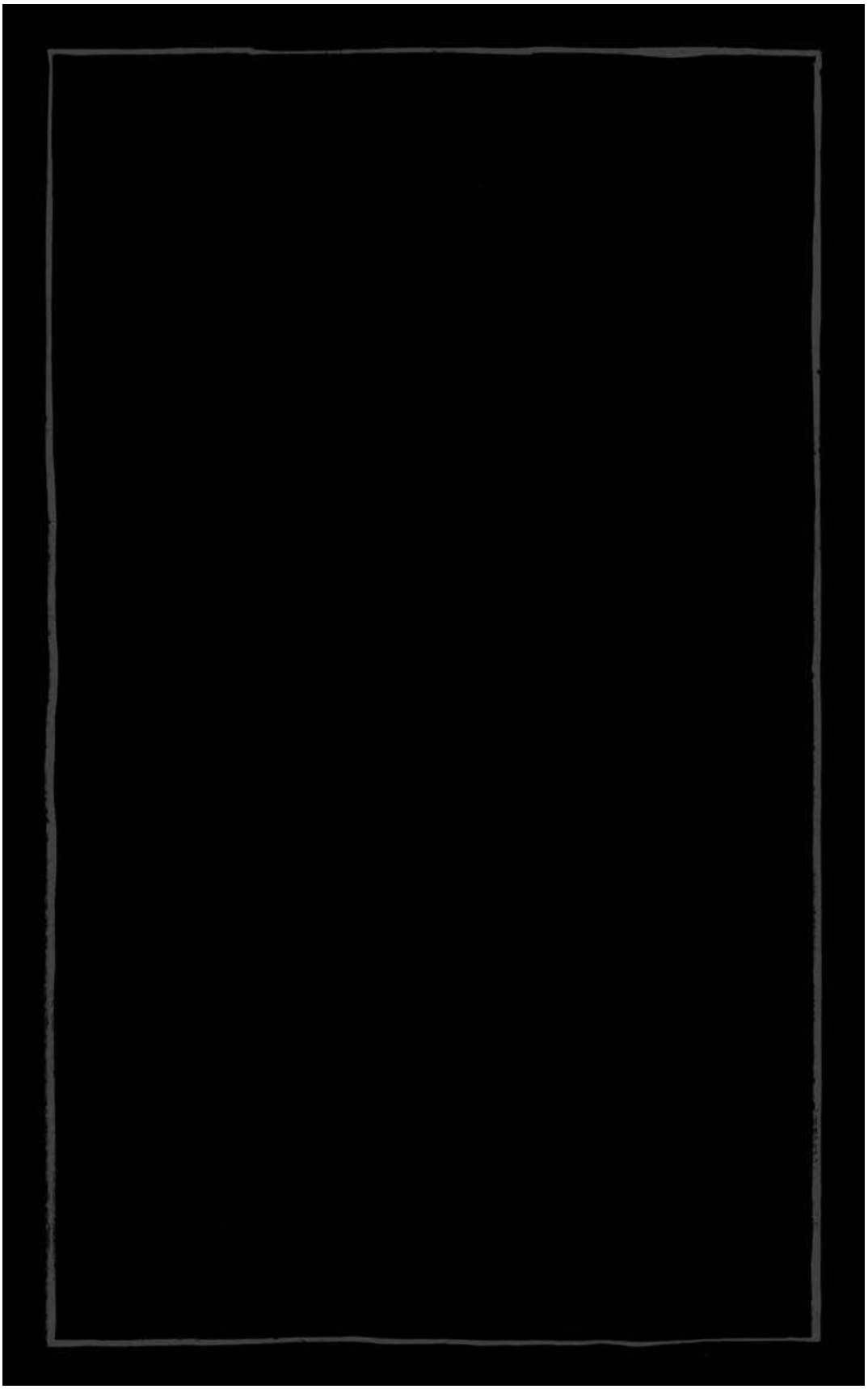


F i g u r e 1

A M O D E L O F T H E B R A I N

C O R T E X

• Creativity • “Thinking” • Language • Values • Time • Hope LIMBIC

• Reward • Memory • Bonding • Emotions DIENCEPHALON

• Arousal • Sleep • Appetite

• Movement

BRAINSTEM

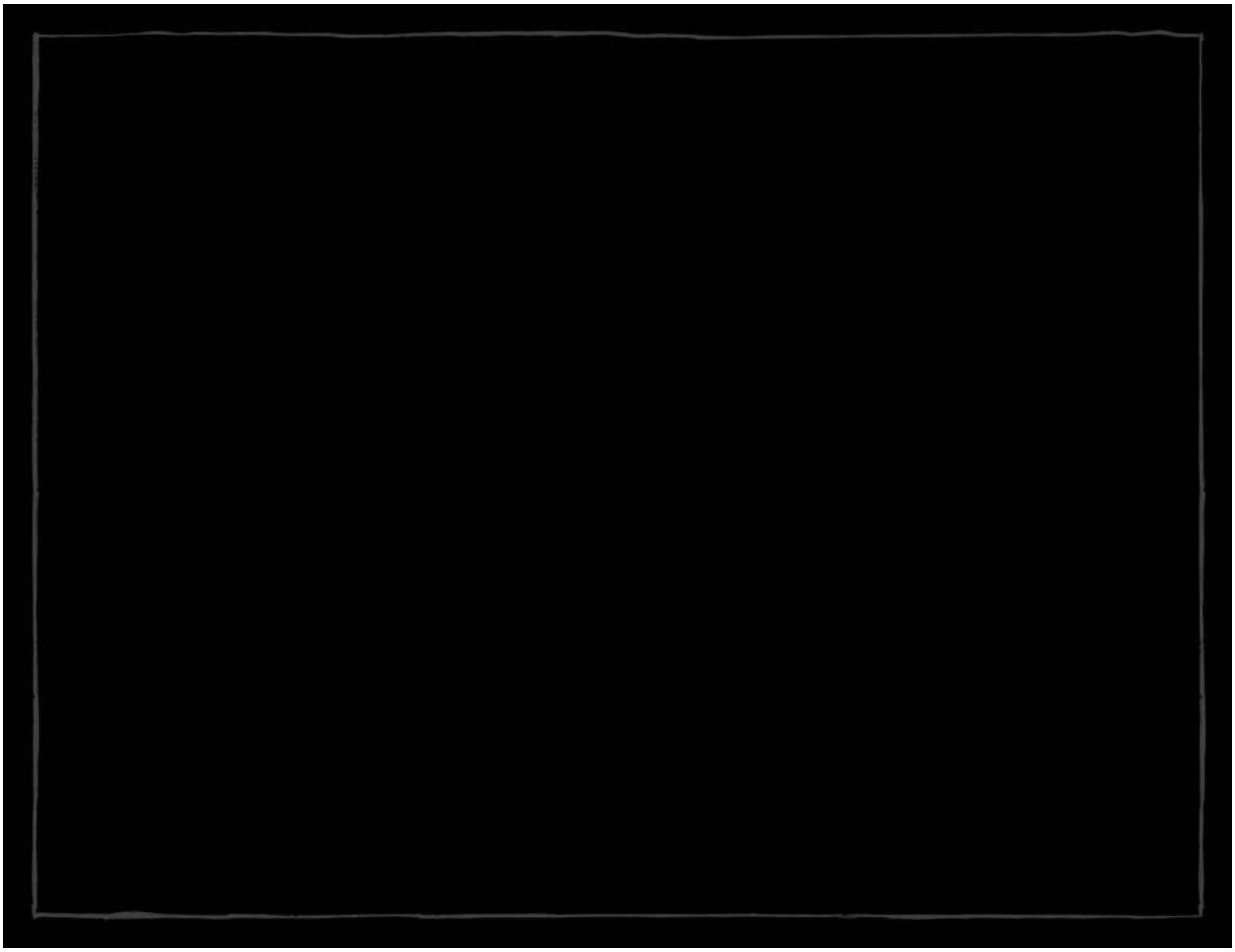
• Temperature

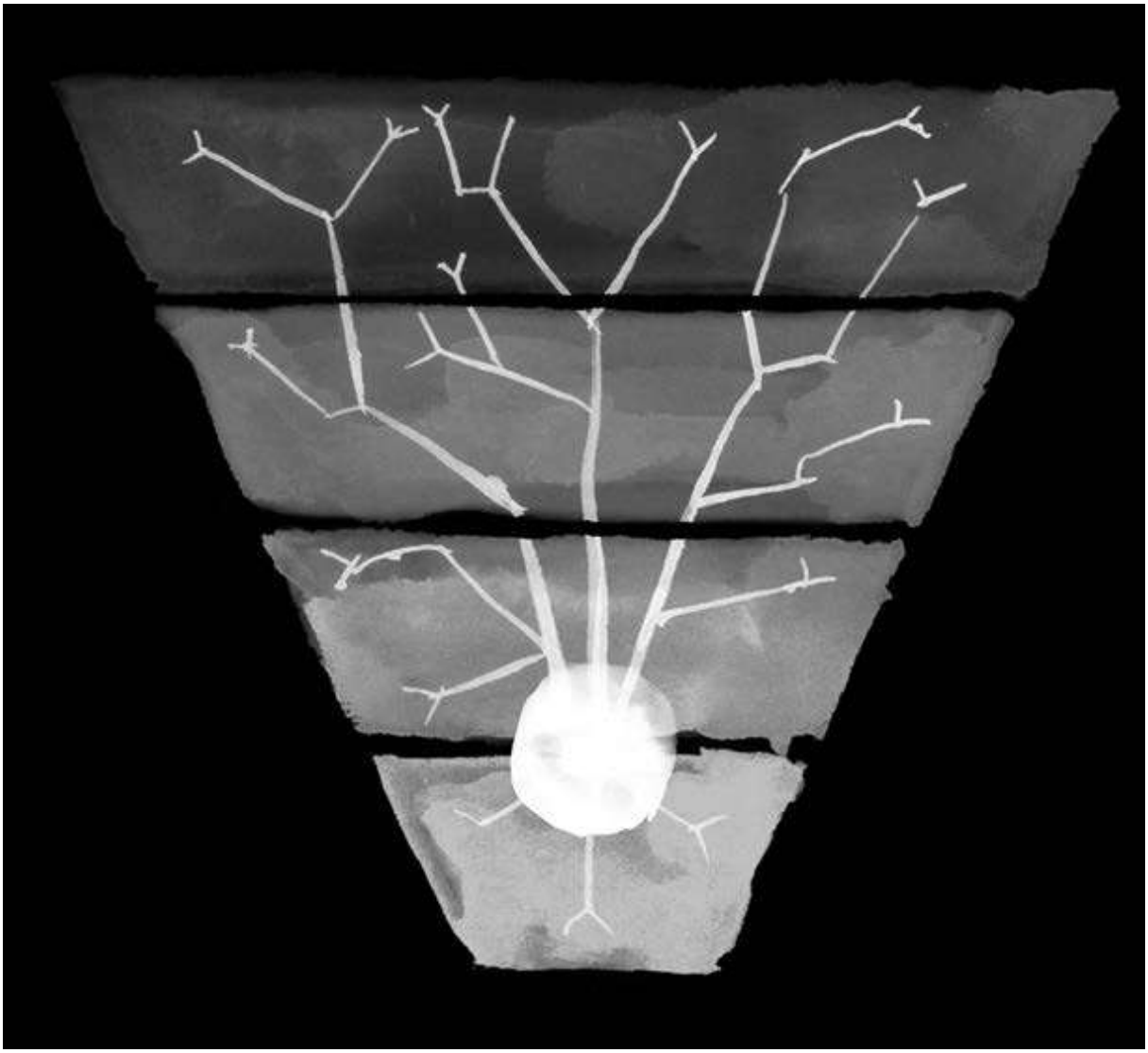
• Respiration

• Cardiac

HIERARCHICAL ORGANIZATION OF THE HUMAN BRAIN

The brain can be divided into four interconnected areas: brainstem, diencephalon, limbic, and cortex. The structural and functional complexity increases from the lower, simpler areas of the brainstem up to the cortex. The cortex mediates the most uniquely “human” functions such as speech and language, abstract cognition, and the capacity to reflect on the past and envision the future.





F i g u r e 2

T R E E O F R E G U L A T I O N

C O R T E X

LIMBIC

The Tree of Regulation is comprised of a set of neural networks our body uses to help us process and respond to stress. We tend to use the word stress in negative ways, but stress is merely a demand on one or more of our body's many physiolog-ical systems. Hunger, thirst, cold, working out, a promotion at work: All are stressors, and stress is an essential and positive

part of normal development; it's a key element in learning, mastering new skills, and building resilience. The key factor in **DIENCEPHALON**

determining whether stress is positive or destructive is the pattern of stress, as shown in Figure 3.

We have a set of core regulatory networks (CRNs), or neural systems, originat-CRNs

ing in the lower parts of the brain and spreading throughout the whole brain, that work together to keep us regulated in the face of various stressors.

NEUROENDOCRINE

♥

Collectively, the branches of this Tree of Regulation direct or influence all func-HPA Axis (e.g., cortisol)

BRAINSTEM

tions of the brain (like thinking and feeling) and the body (impacting your heart, **AUTONOMIC (ANS)**

stomach, lungs, pancreas, and more). They are trying to keep everything in equilib-Sympathetic (ANS)

rium, everything regulated, everything in balance.

Parasympathetic (ANS)

NEUROIMMUNE

INTEROCEPTION

FIVE SENSES

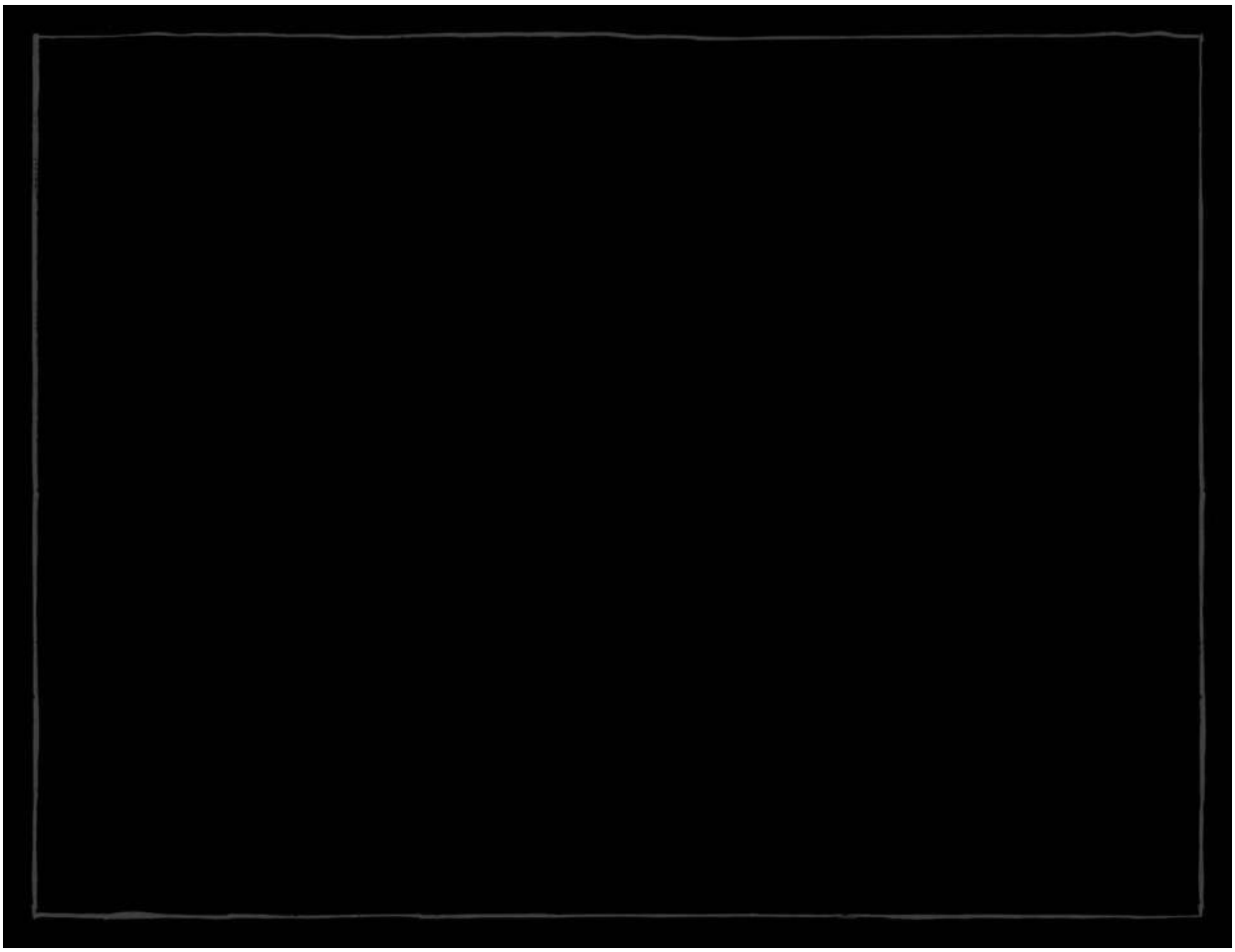
Input from the

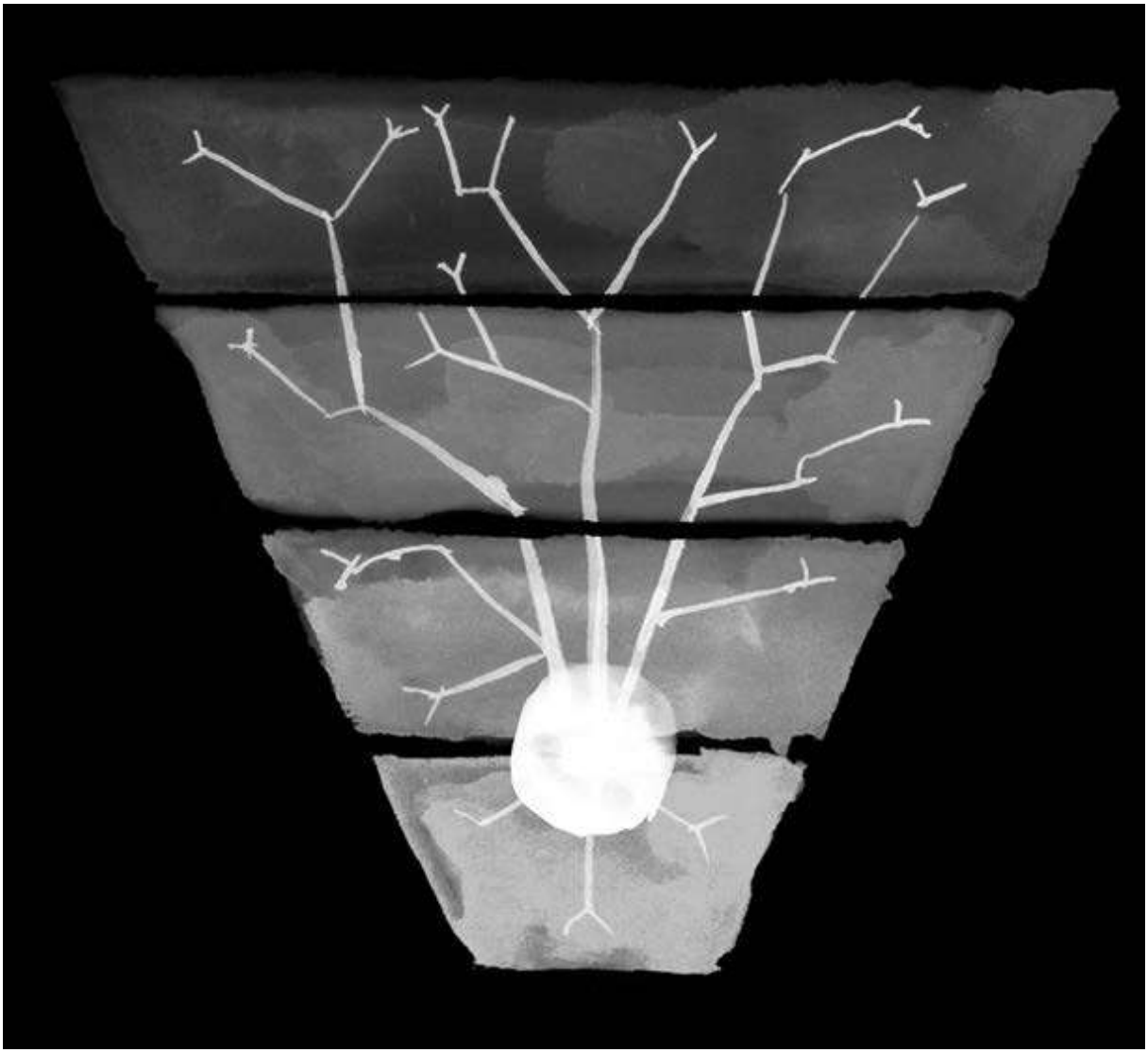
Input from the

inside world (body)

outside world

Note: HPA = Hypothalamic-Pituitary-Adrenal Axis; ANS = Autonomic Nervous System; CRNs = Core Regulatory Networks





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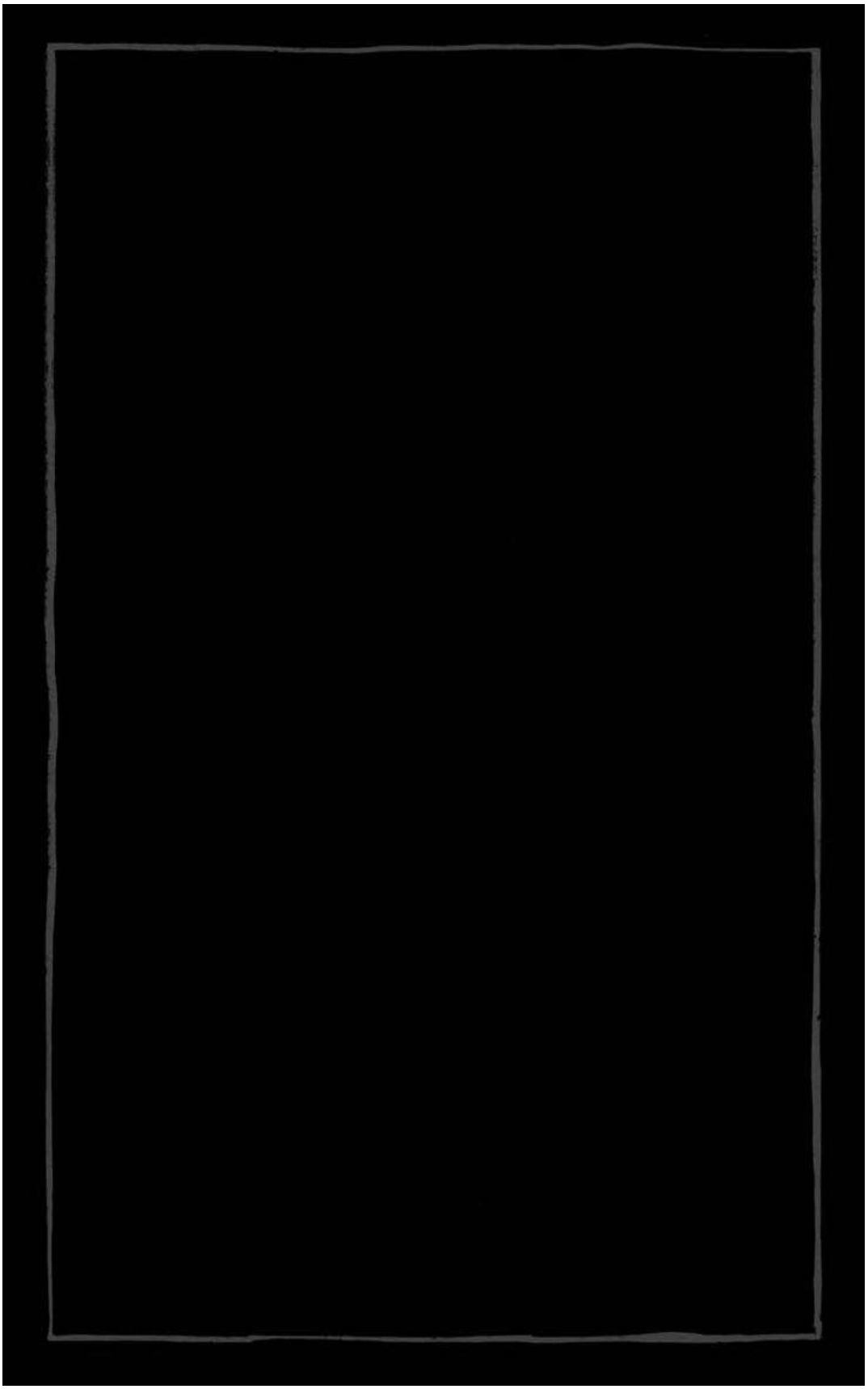


Figure 3

PATTERNS OF STRESS ACTIVATION

PATTERN OF

STRESS

Unpredictable

Predictable

Extreme

Moderate

Prolonged

Controllable

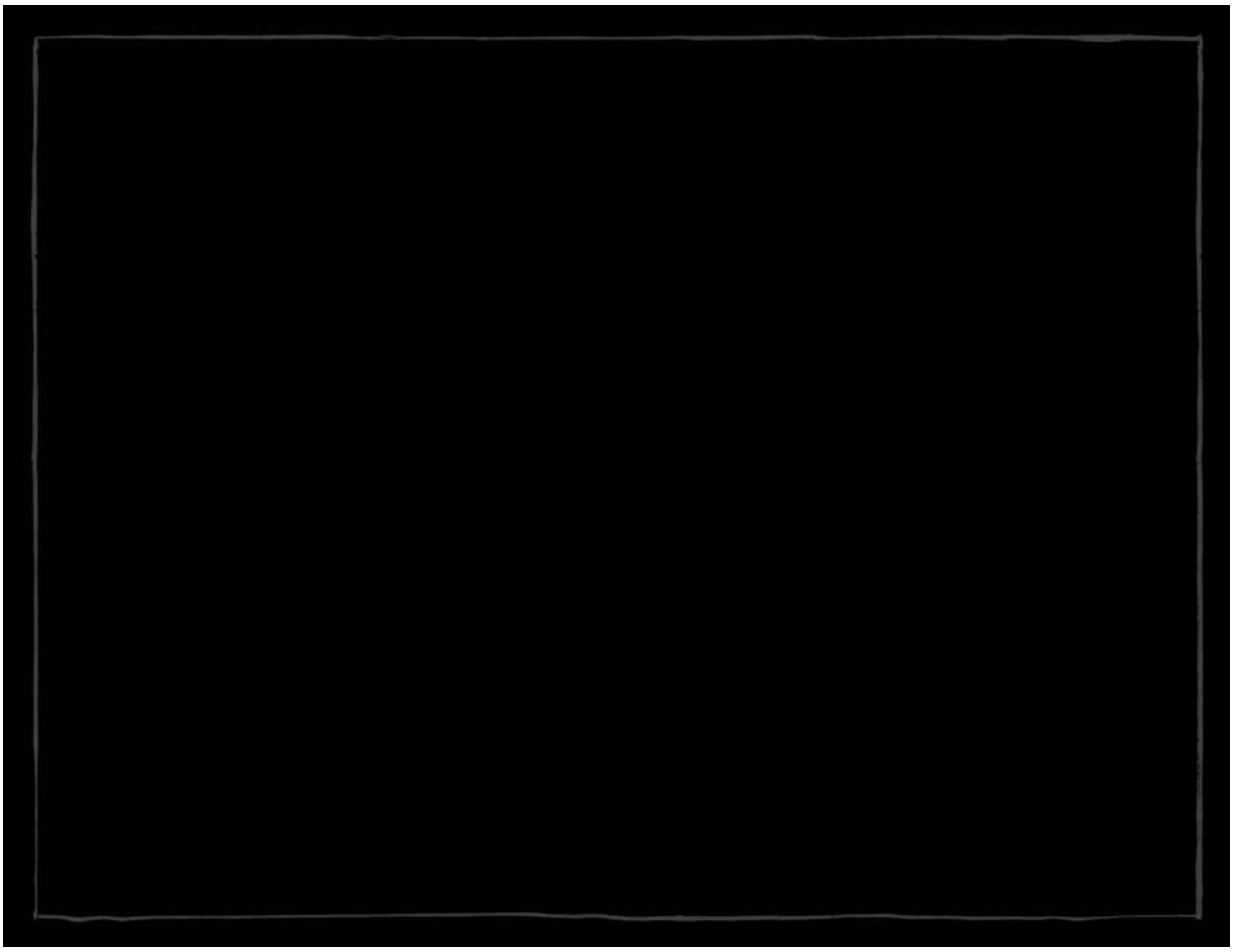
SENSITIZATION

TOLERANCE

Vulnerability

Resilience

The long-term effects of stress are determined by the pattern of stress activation. When the stress-response systems are activated in unpredictable or extreme or prolonged ways, the systems become overactive and overly reactive—in other words, sensitized. Over time, this can lead to functional vulnerability, and since the stress-response systems collectively reach all parts of the brain and body, a cascade of risk in emotional, social, mental, and physical health occurs. In contrast, predictable, moderate, and controllable activation of the stress-response systems, such as that seen with developmentally appropriate challenges in education, sport, music, and so forth, can lead to a stronger, more flexible stress-response capability—i.e., resilience.



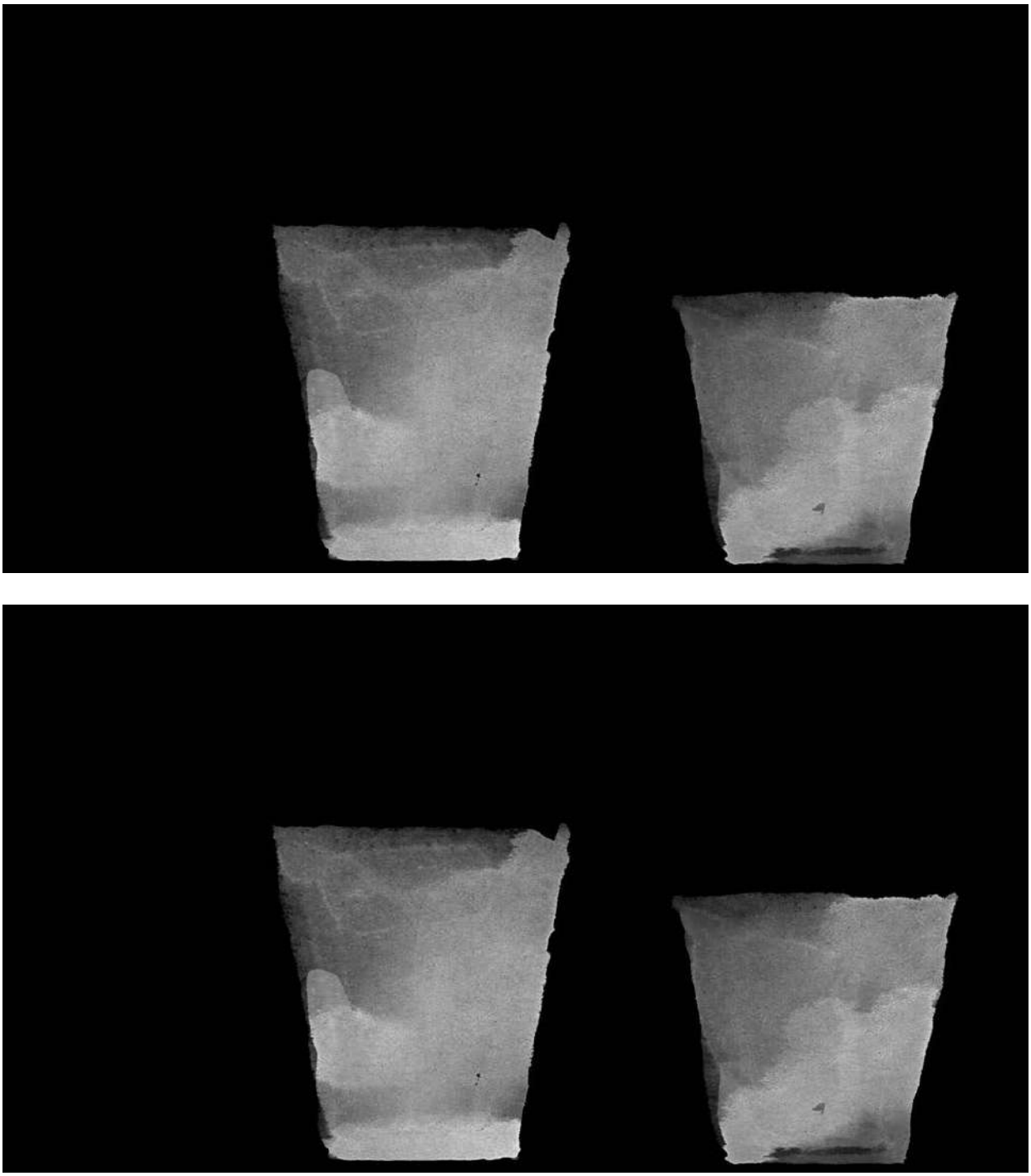


Figure 4

FILLINGOURREWARDBUCKET

BELIEFS

SWEET/SALTY/FATTY FOODS

SEX

SWEET/SALTY/

FATTY FOODS

RHYTHM

ALCOHOL, DRUGS

RELATIONAL

RELATIONAL

A

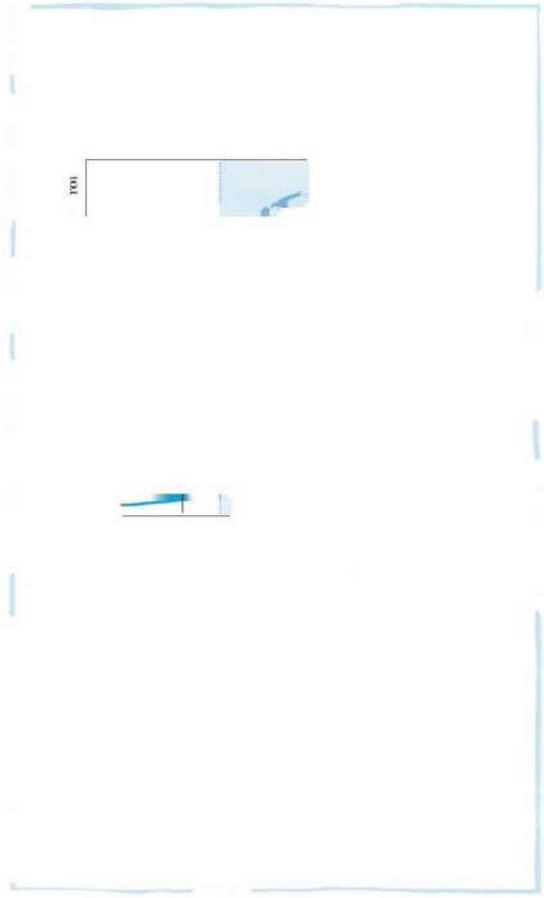
B

Activation of key neural networks in the brain can produce the sense of pleasure or black-dotted line, we feel fulfilled and regulated. Each of us does this in a somewhat reward. These reward circuits can be activated in multiple ways, including relief of individualized way.

distress (e.g., using Alcohol to self-medicate or Rhythm to regulate the anxiety pro-Many of us have opportunities for healthy rewards: lots of positive human inter-duced by a stress-response system that's been altered by trauma); positive human actions through work, worship, or volunteering that are consistent with our values interactions (Relational); direct activation of the reward systems using various drugs and beliefs, for example (A). But a lack of strong relationships and connection can of abuse such as cocaine or heroin (Drugs); eating Sweet-Salty-Fatty Foods (SSF

make an individual more vulnerable to overuse of other, less healthy forms of reward foods); and behaviors consistent with your values or beliefs (Beliefs).

(B). A healthy combination of rewards (e.g., lots of positive human interactions, doing Each day we need to fill our “reward bucket.” The darker dashed line is a mini-work consistent with your values, integrating healthy rhythm and sexuality into your mal level of reward that we need to feel adequately regulated and rewarded; if our day, staying regulated in healthy ways) can help decrease the pull toward any single, daily set of rewards falls below this, we feel distressed. If we get above the upper, unhealthy form of reward such as substance use or overeating.



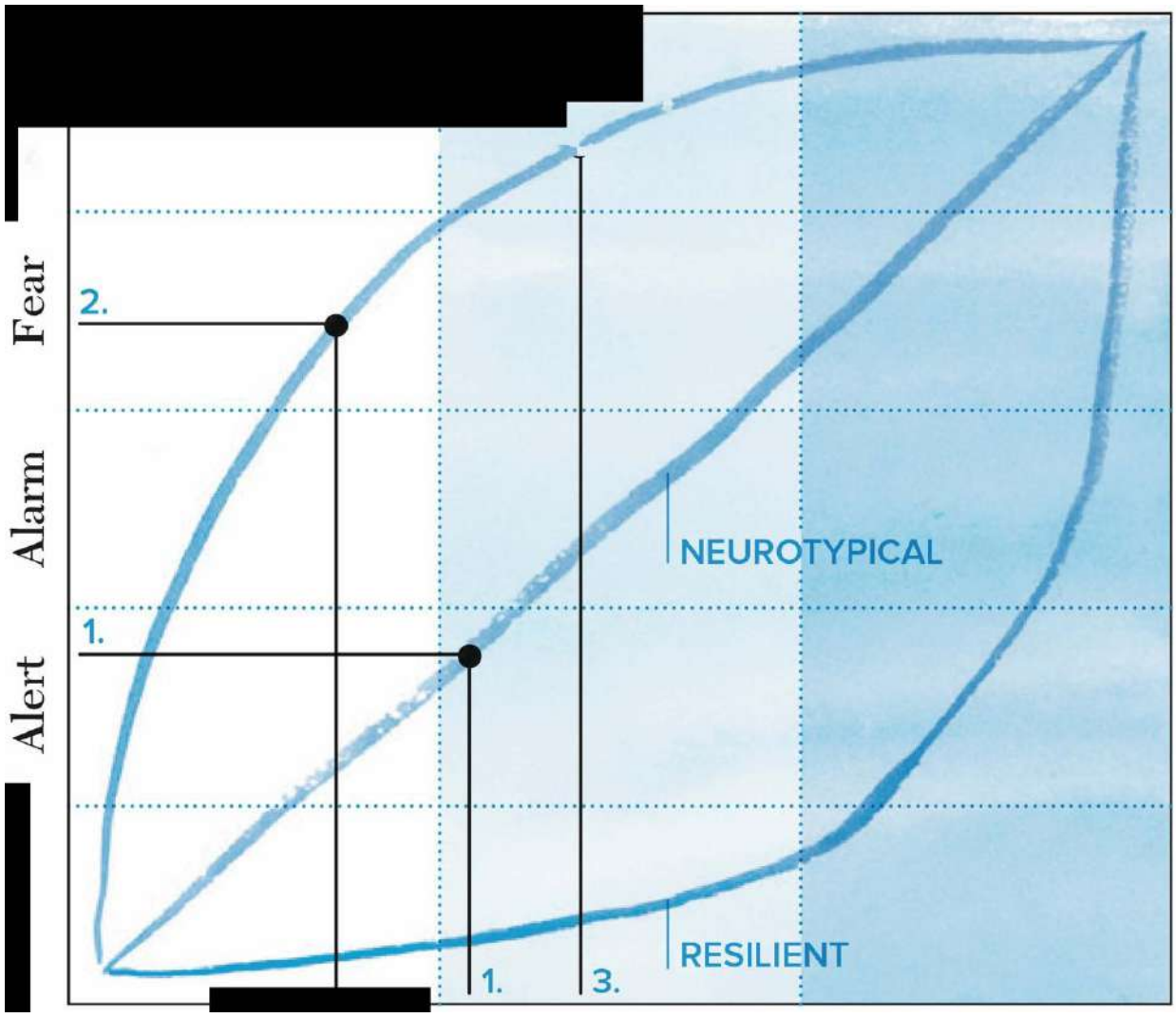

Fear
Alarm
Alert
2.
1.
NEUROTYPICAL
RESILIENT
1.
3.

Figure 5

STATE-REACTIVITY CURVE

.

SENSITIZED I

_3_. _____ ..... __ _

s

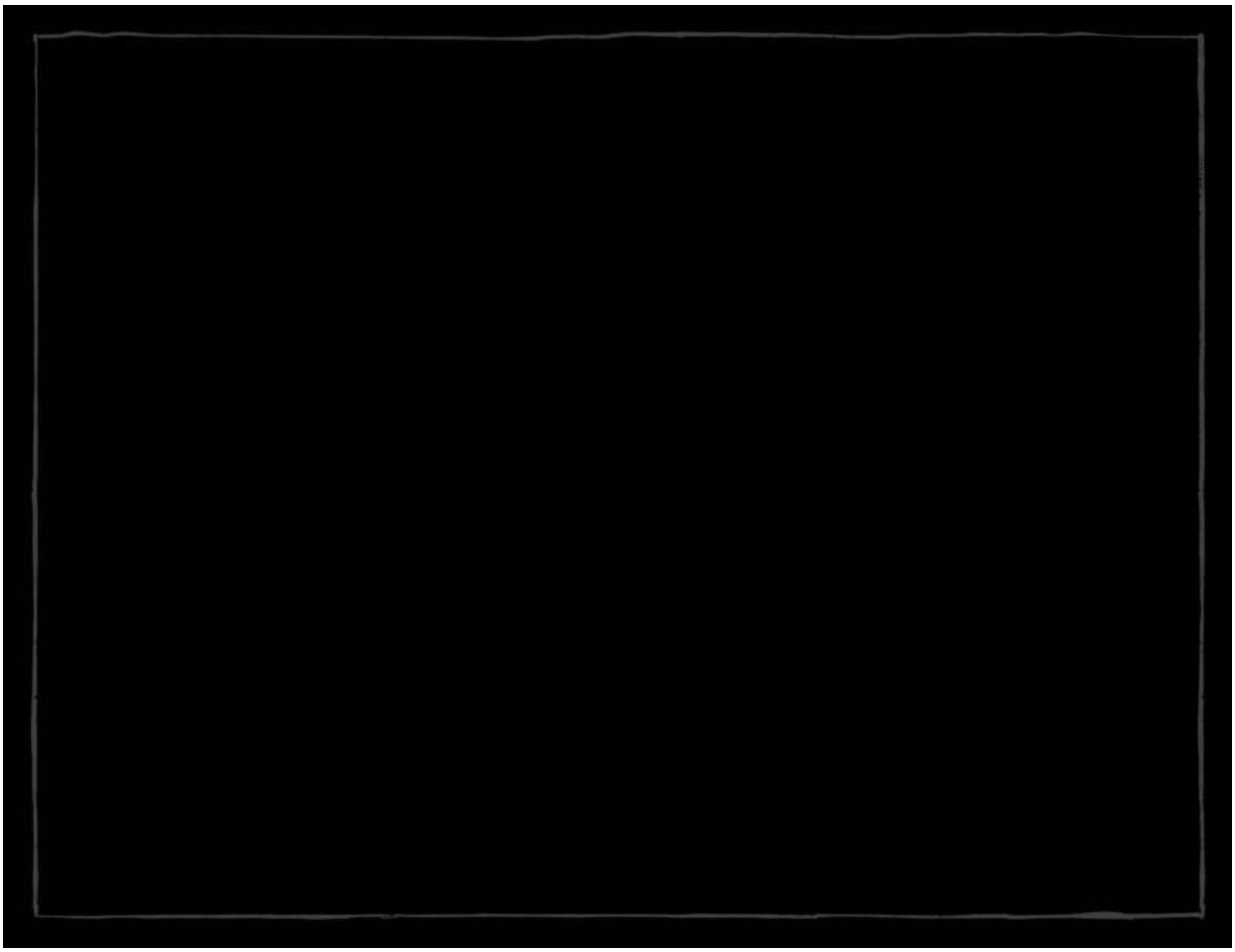
ca

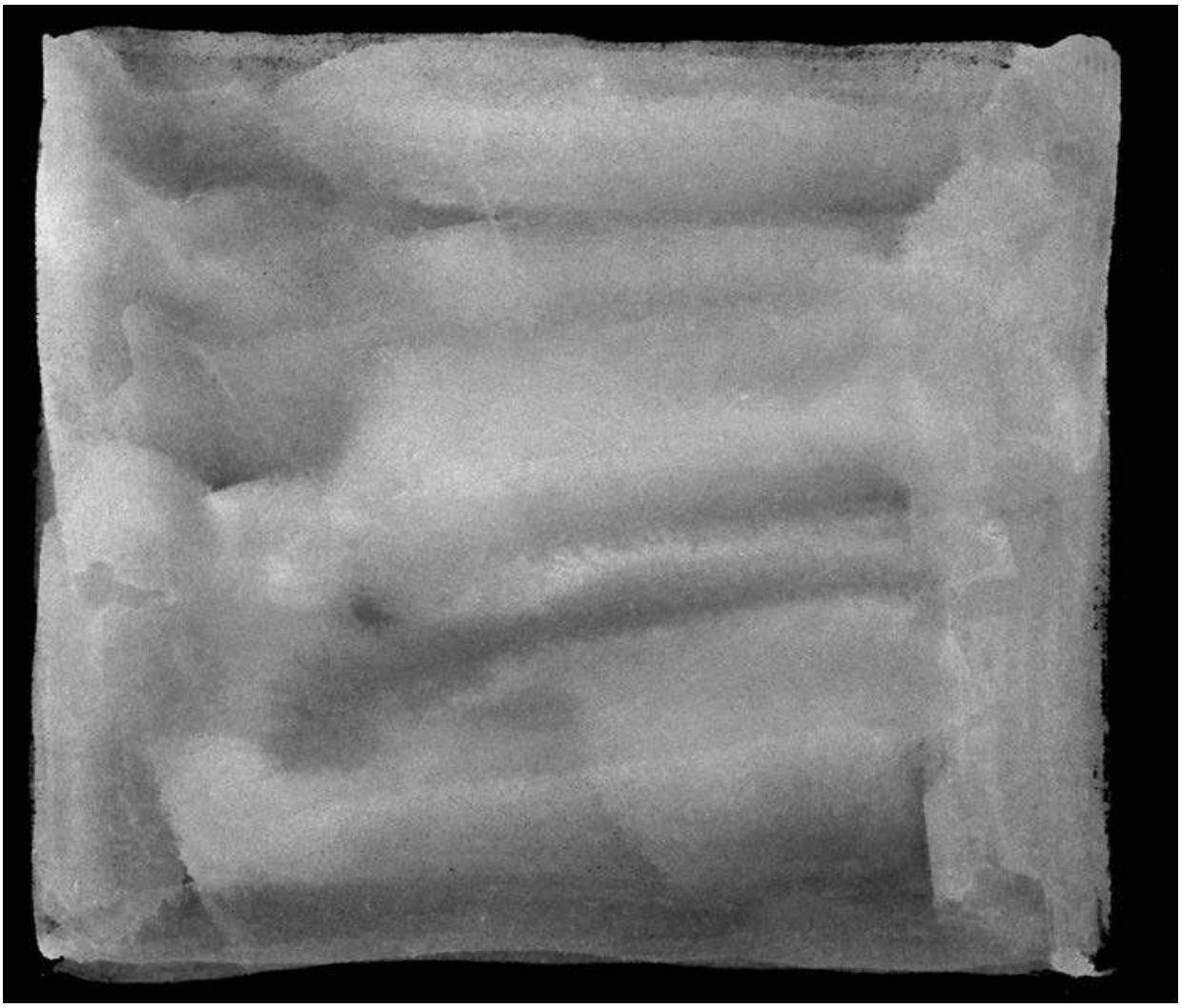
u

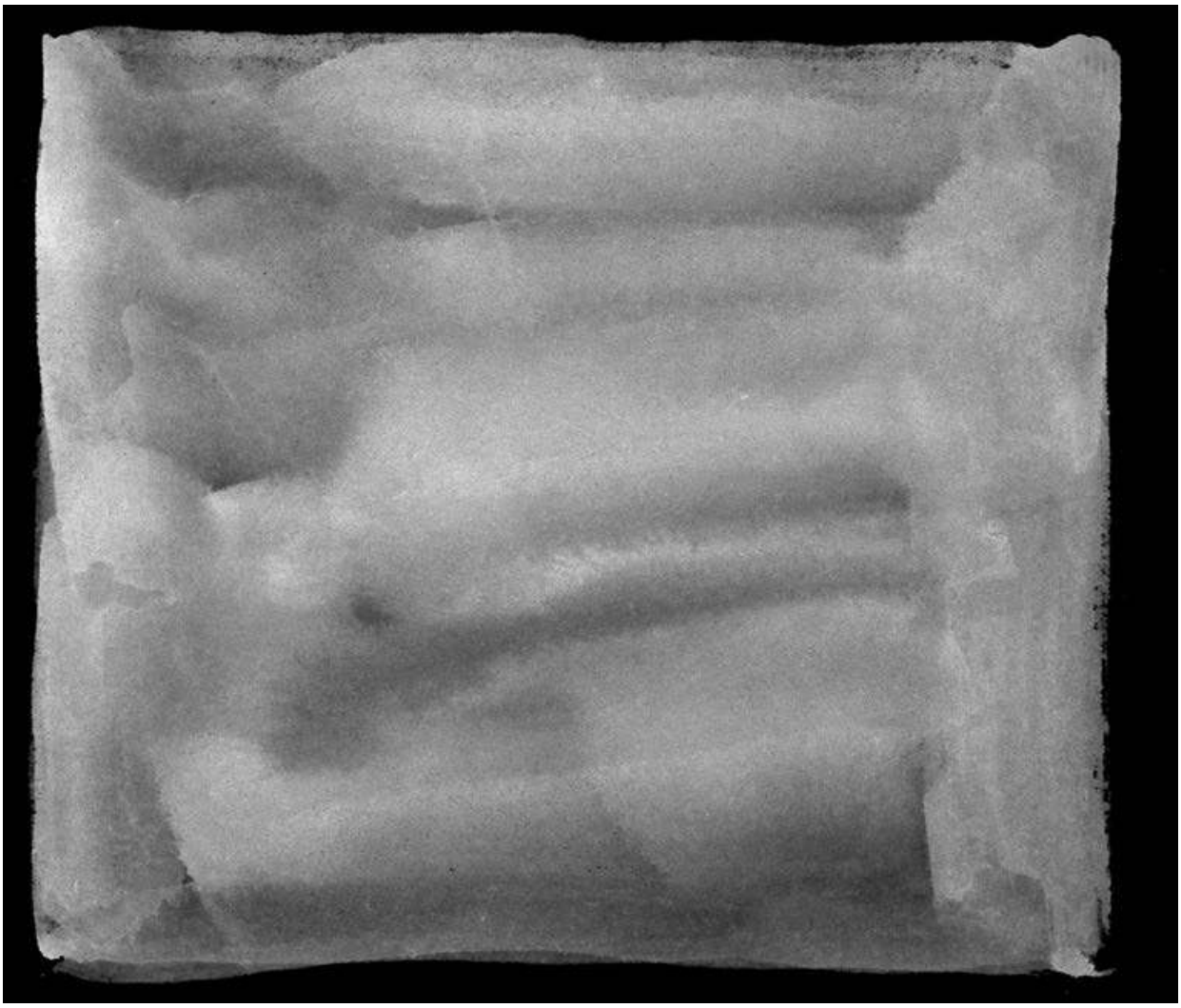
2.

Daily challenge Moderate stress Distress - threat When a challenge or stressor occurs, it will push us out of balance, and an internal stress response will be activated to get us back in balance. With no significant stressors-no internal needs (hunger, thirst, etc.) unmet and no external complexity or threat-we will be in a state of calm. As challenges and stress increase, our internal state will shift, from alert to terror (see Figure 6).

In someone with *neurotypical* stress-response systems, there is a linear relationship between the degree of stress and the shift in internal state (straight diagonal line). For example, in the face of a moderate stressor (1), a proportional activation will put the individual in an active alert state. If an individual has a *sensitized* stress response (top curve) caused by their history of trauma, even the most basic daily challenges (2) will induce a state of fear. Someone with a sensitized stress response (3) will respond to even moderate stress with a terror response. This overreactivity contributes to their emotional, behavioral, and physical health problems.







F i g u r e 6

S T A T E - D E P E N D E N T F U N C T I O N I N G

"STATE"

CALM

ALERT

ALARM

FEAR

TERROR

DOMINANT

Cortex

Cortex

Limbic

Diencephalon

BRAIN AREAS

(DMN)

(Limbic)

(Diencephalon)

(Brainstem)

Brainstem

ADAPTIVE

"Option"

Reflect

Flock

Freeze

Flight

Arousal

(create)

(hypervigilance)

(resistance)

(defiance)

Fight

ADAPTIVE

"Option"

Reflect

Faint

Dissociation

(daydream)

Avoid

Comply

Dissociate

(paralysis/catatonia)

(collapse)

Abstract

Concrete

COGNITION

(creative)

(routine)

Emotional

Reactive

Reflexive

FUNCTIONAL

IQ

120–100

110–90

100–80

90–70

80–60

All functioning of the brain depends on the state we're in. As we move from one more control of functioning shifts from higher systems (cortex) to lower systems internal state to another, there will be a shift in the parts of the brain that are in "con-

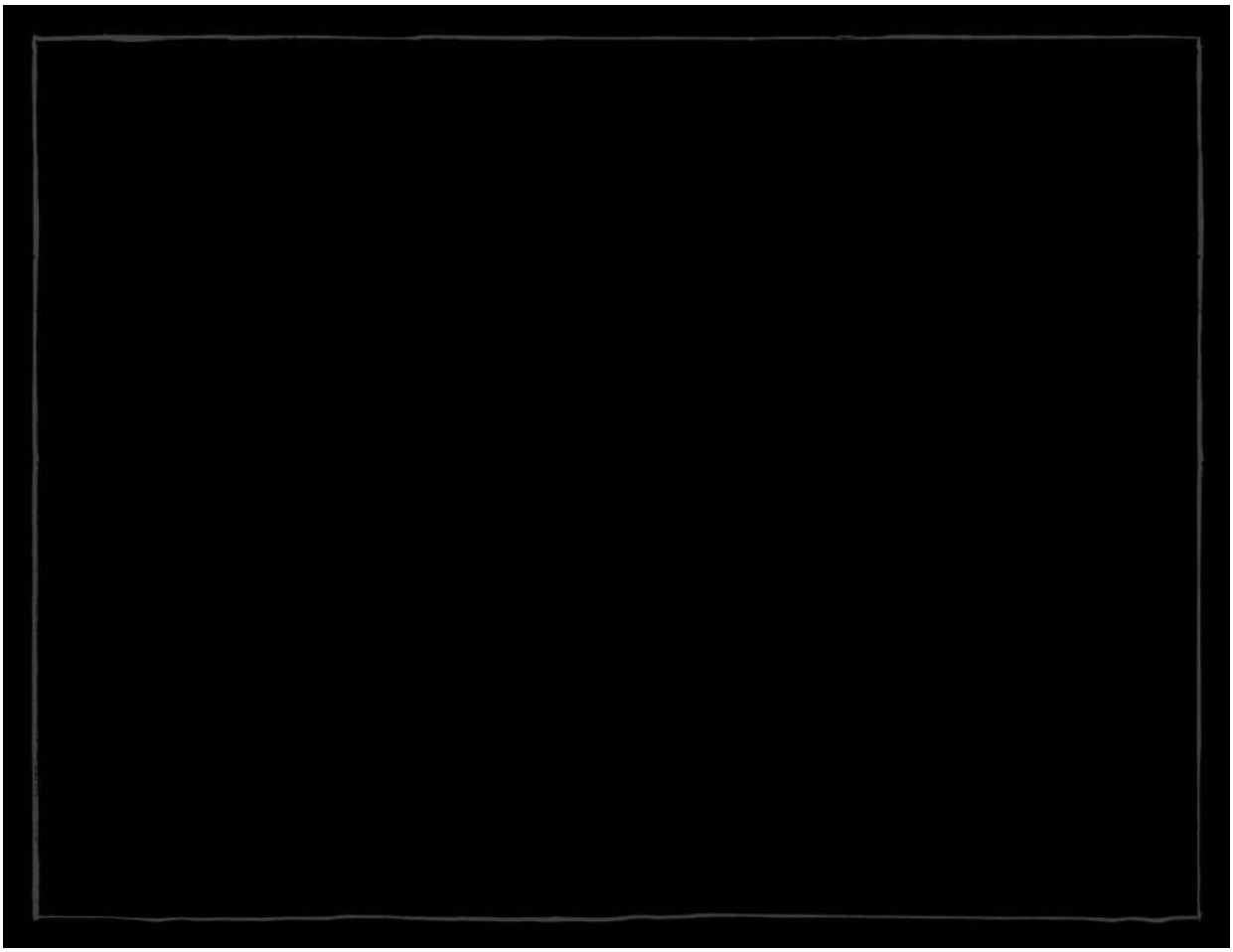
(diencephalon and brainstem). Fear shuts down many cortical systems.

trol" (dominant); when you are calm, for example, you are able to use the "smartest"

Adaptive behaviors seen during state-dependent shifts in functioning will differ parts of your brain (the cortex) to reflect and create. When you feel threatened, those depending upon which of the two major adaptive response patterns (Arousal cortical systems become less dominant, and more reactive parts of your brain begin and Dissociation) are dominant for any given individual during a stressful or trau-to take over. This continuum goes from calm to terror.

matic event.

State-dependent shifts result in corresponding changes in a host of brain-Default Mode Network (DMN) is a term for a widely distributed network, mostly mediated functions, including problem-solving capacity, style of thinking (or cogni-in the cortex, that is active when an individual is thinking about others, thinking tion), and the sphere of concern. In general, the more threatened someone feels, the about themselves, remembering the past, and planning for the future.









F i g u r e 7

A D V E R S E C H I L D H O O D E X P E R I E N C E S U R V E Y

Prior to your eighteenth birthday...

1. Did a parent or other adult in the household often or very often . . .

6. Were your parents ever separated or divorced?

Swear at you, insult you, put you down, or humiliate you? Or act **No____ If Yes, enter 1 ____**

in a way that made you afraid that you might be physically hurt?

7. Was your mother or stepmother . . . Often or very often pushed, **No____ If Yes, enter 1 ____**

grabbed, slapped, or had something thrown at her? Or some-2. Did a parent or other adult in the household often or very often . . .

times, often, or very often kicked, bitten, hit with a fist, or hit Push, grab, slap, or throw something at you? Or ever hit you so with something hard? Or ever repeatedly hit over at least a few hard that you had marks or were injured?

minutes or threatened with a gun or knife?

No____ If Yes, enter 1 ____

No____ If Yes, enter 1 ____

3. Did an adult or person at least five years older than you ever . . .

8. Did you live with anyone who was a problem drinker or Touch or fondle you or have you touch their body in a sexual alcoholic, or who used street drugs?

way? Or attempt or actually have oral, anal, or vaginal inter-No____ If Yes, enter 1 ____

course with you?

9. Was a household member depressed or mentally ill, or did a **No____ If Yes, enter 1 ____**

household member attempt suicide?

4. Did you often or very often feel that . . . No one in your family **No____ If Yes, enter 1 ____**

loved you or thought you were important or special? Or your family didn't look out for each other, feel close to each other, or 10. Did a household member go to prison?

support each other?

No____ If Yes, enter 1 ____

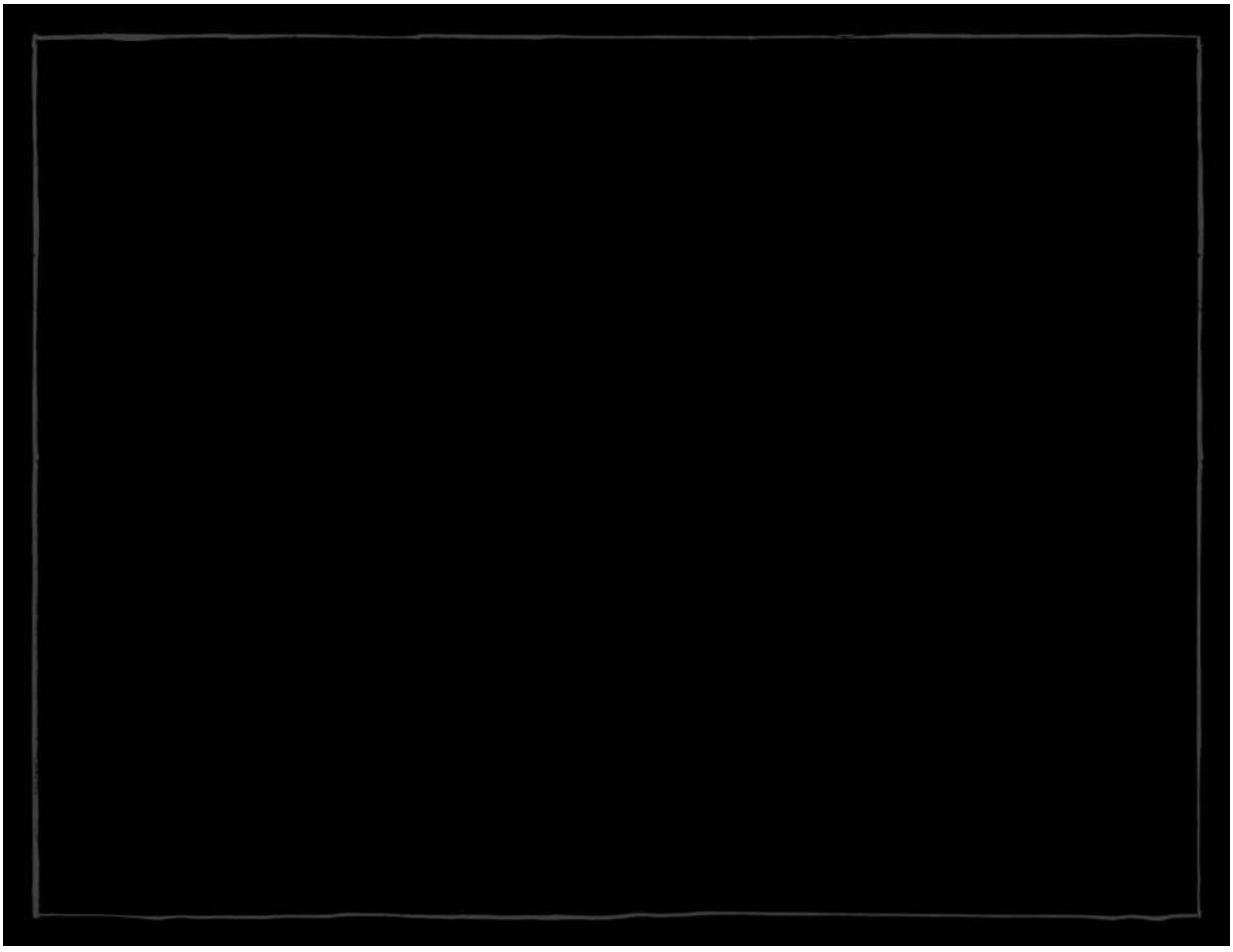
No____ If Yes, enter 1 ____

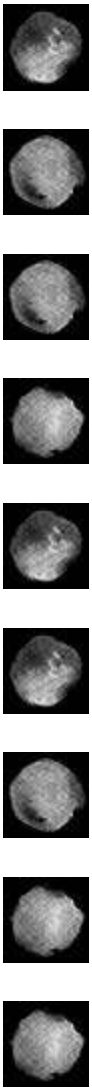
Now add up your "Yes" answers: _ _ ___ This is your ACE score.

5. Did you often or very often feel that . . . You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?

Or your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

No____ If Yes, enter 1 ____





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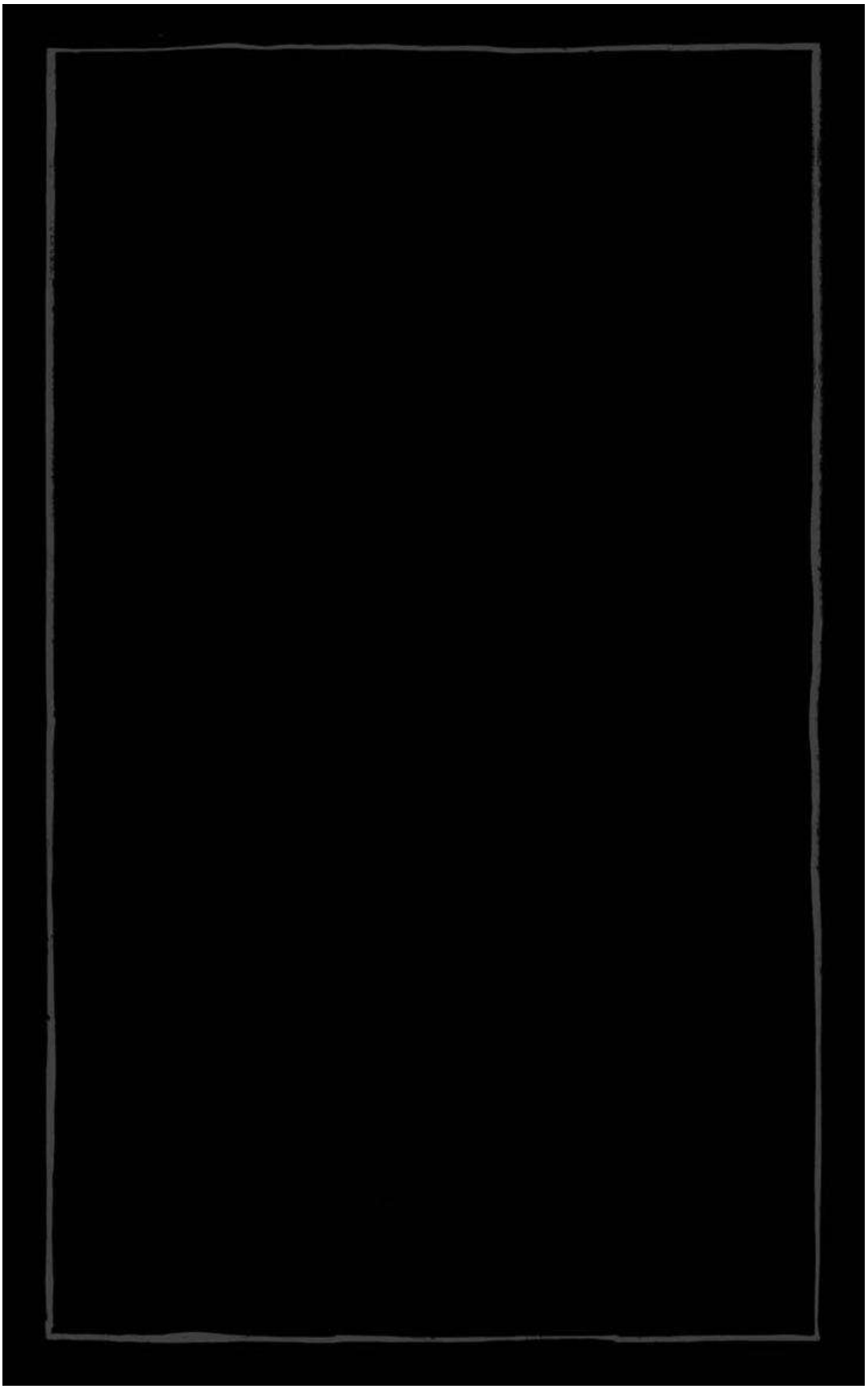
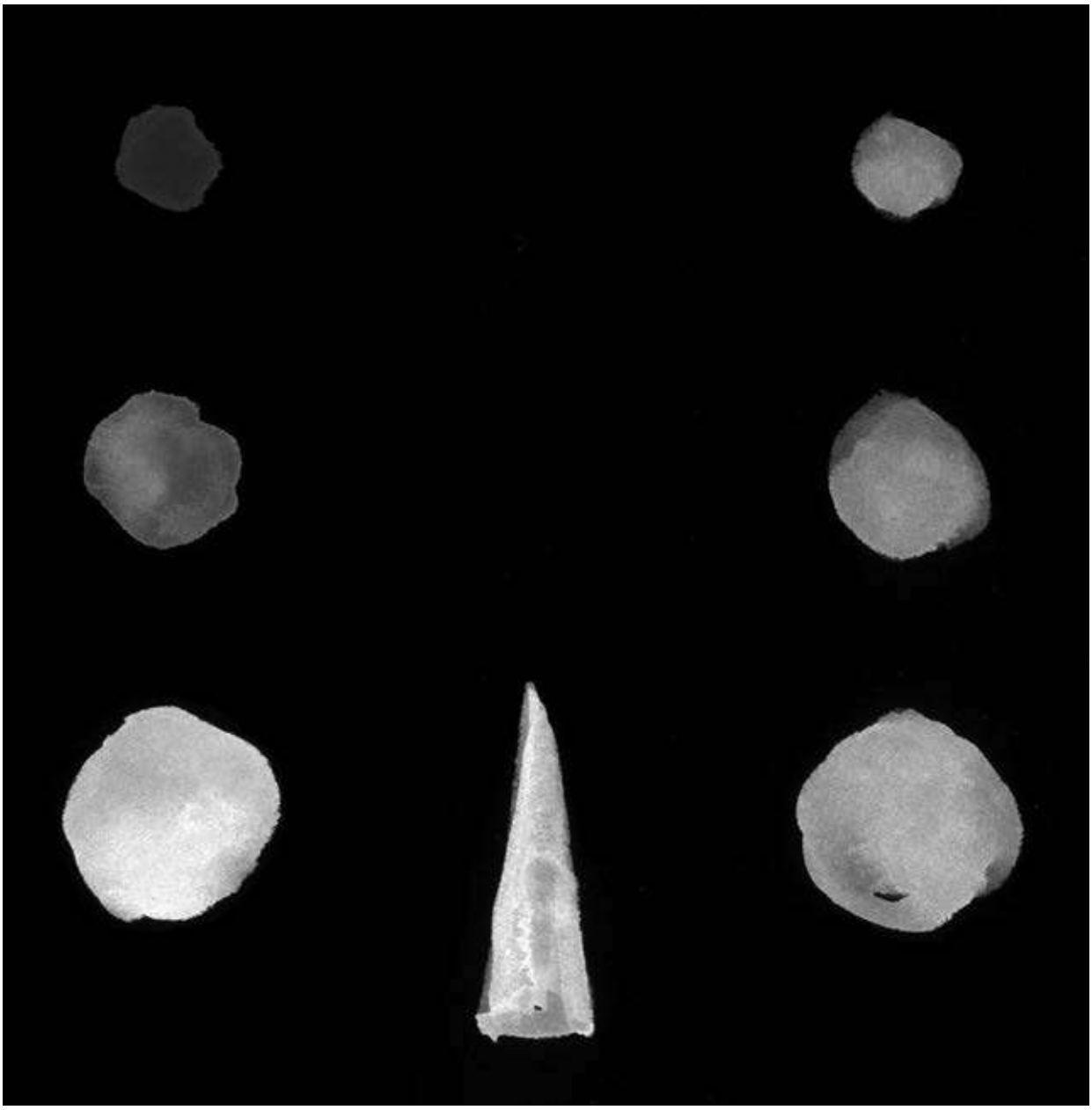
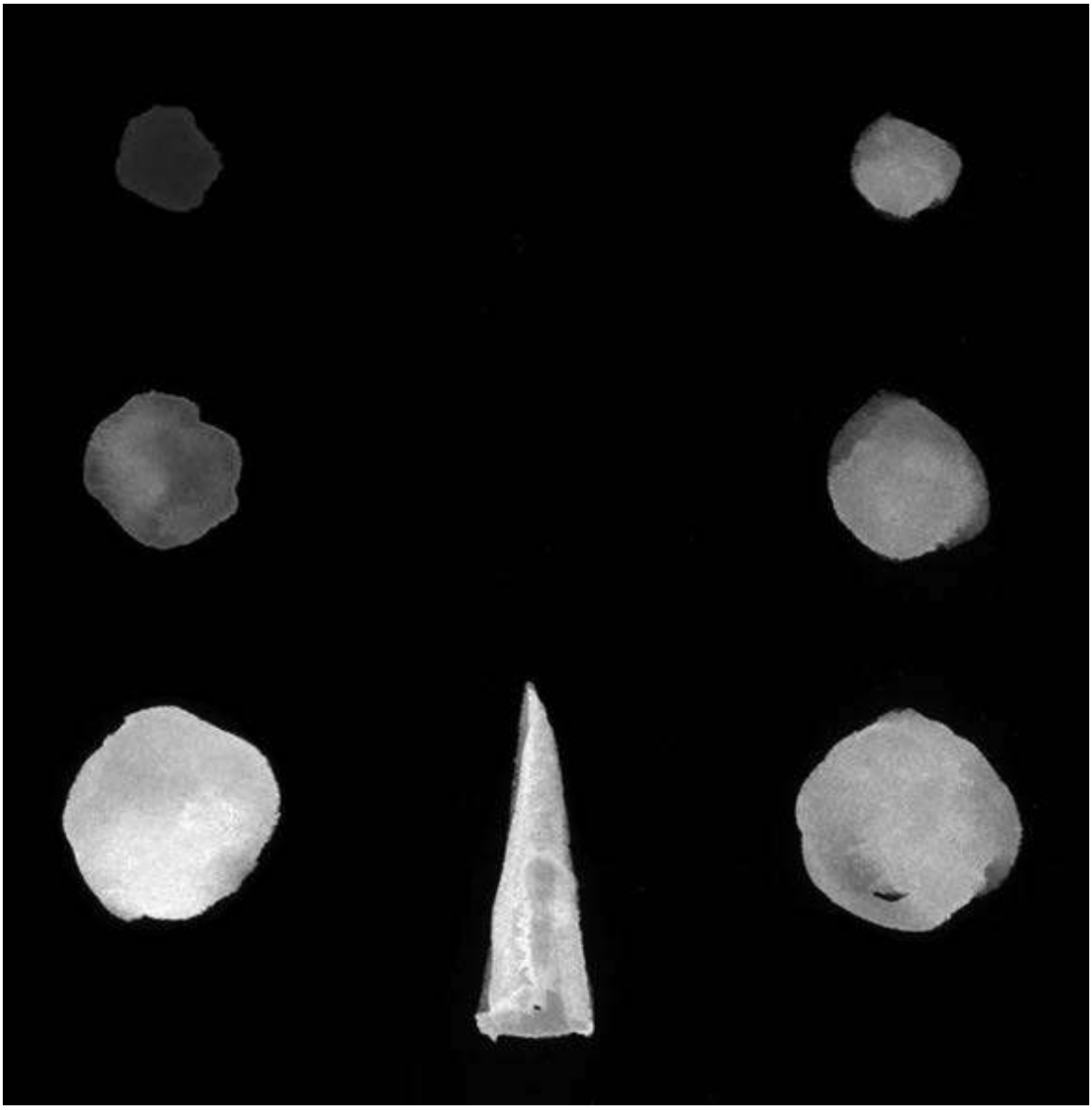
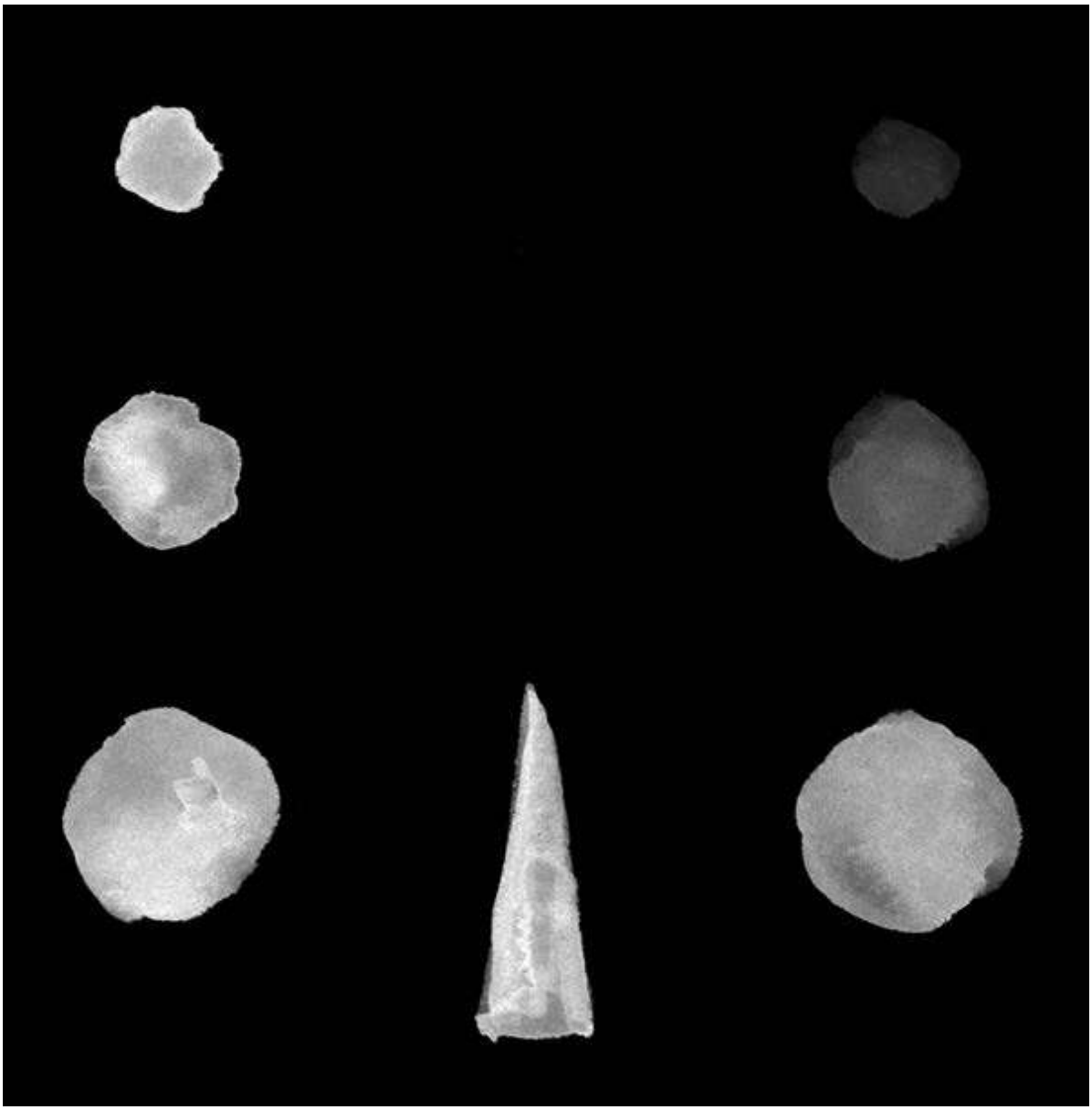








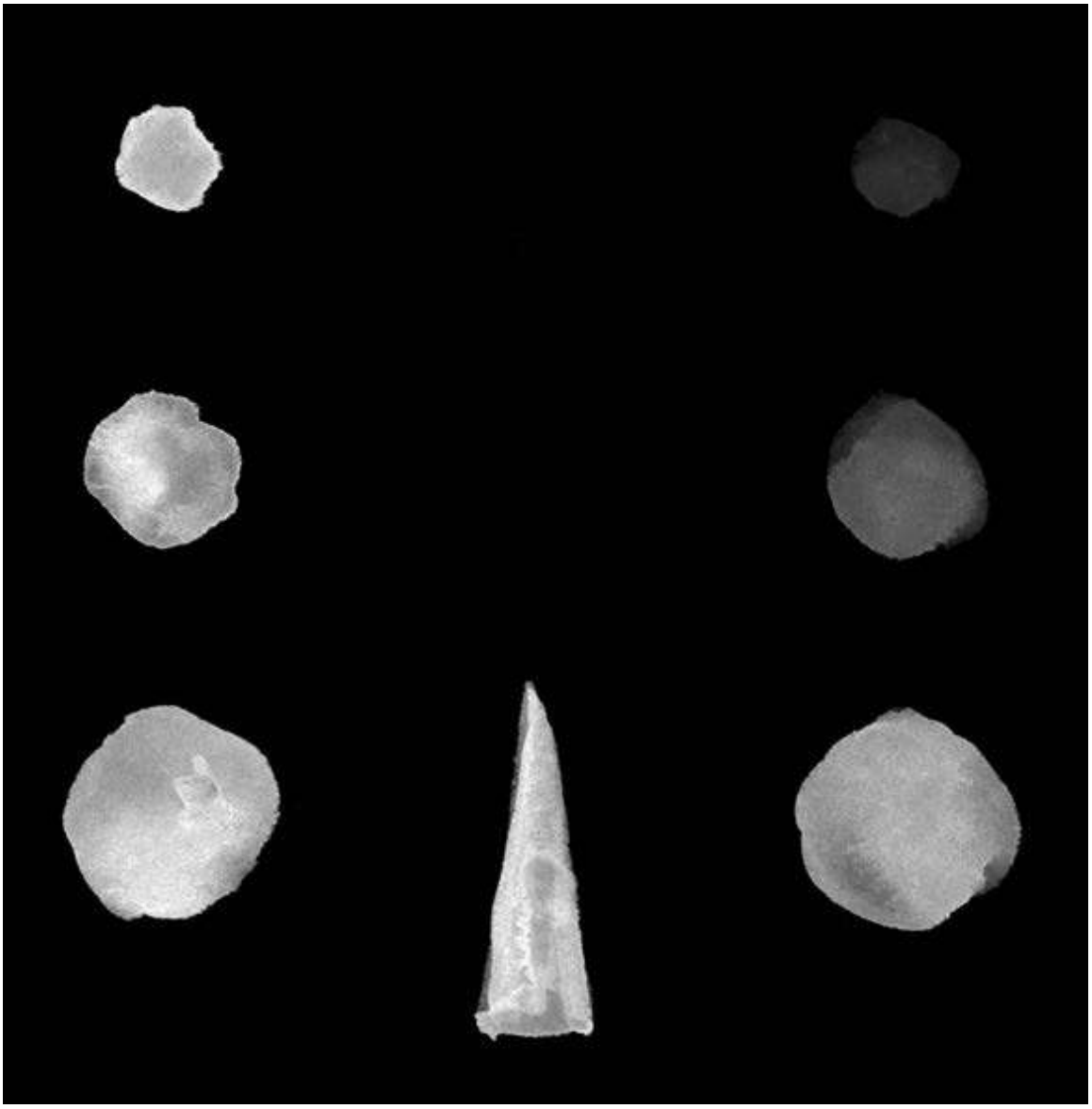


Figure 8

THE IMPACT OF DEVELOPMENTAL

EXPERIENCE

THE BALANCE BETWEEN ADVERSITY AND CONNECTEDNESS

DEVELOPMENTAL

GLOBAL HEALTH

RISK

PROBLEMS

Adversity

Relational

Health

Low

High

Adversity

Relational

Health

Adversity

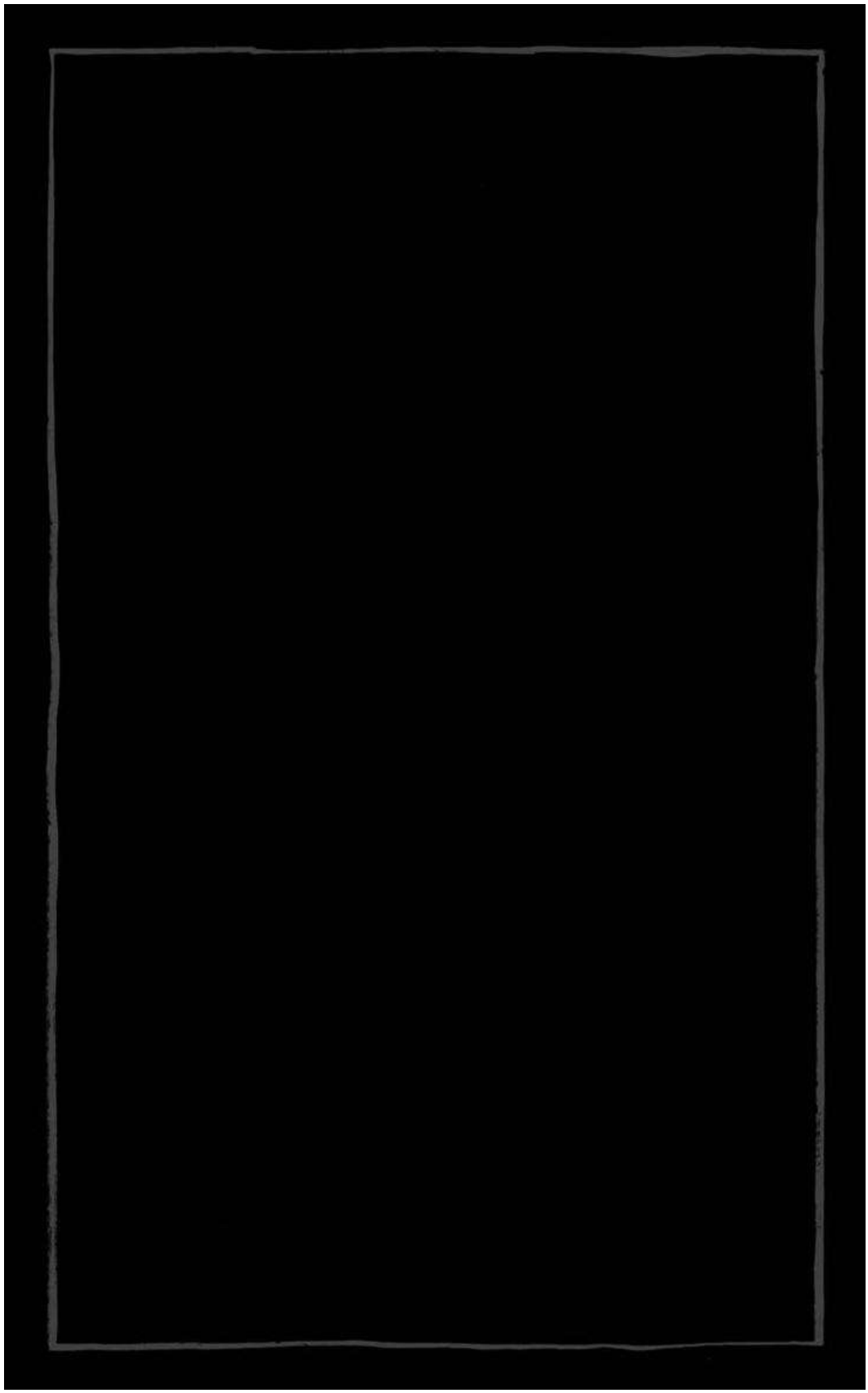
Relational

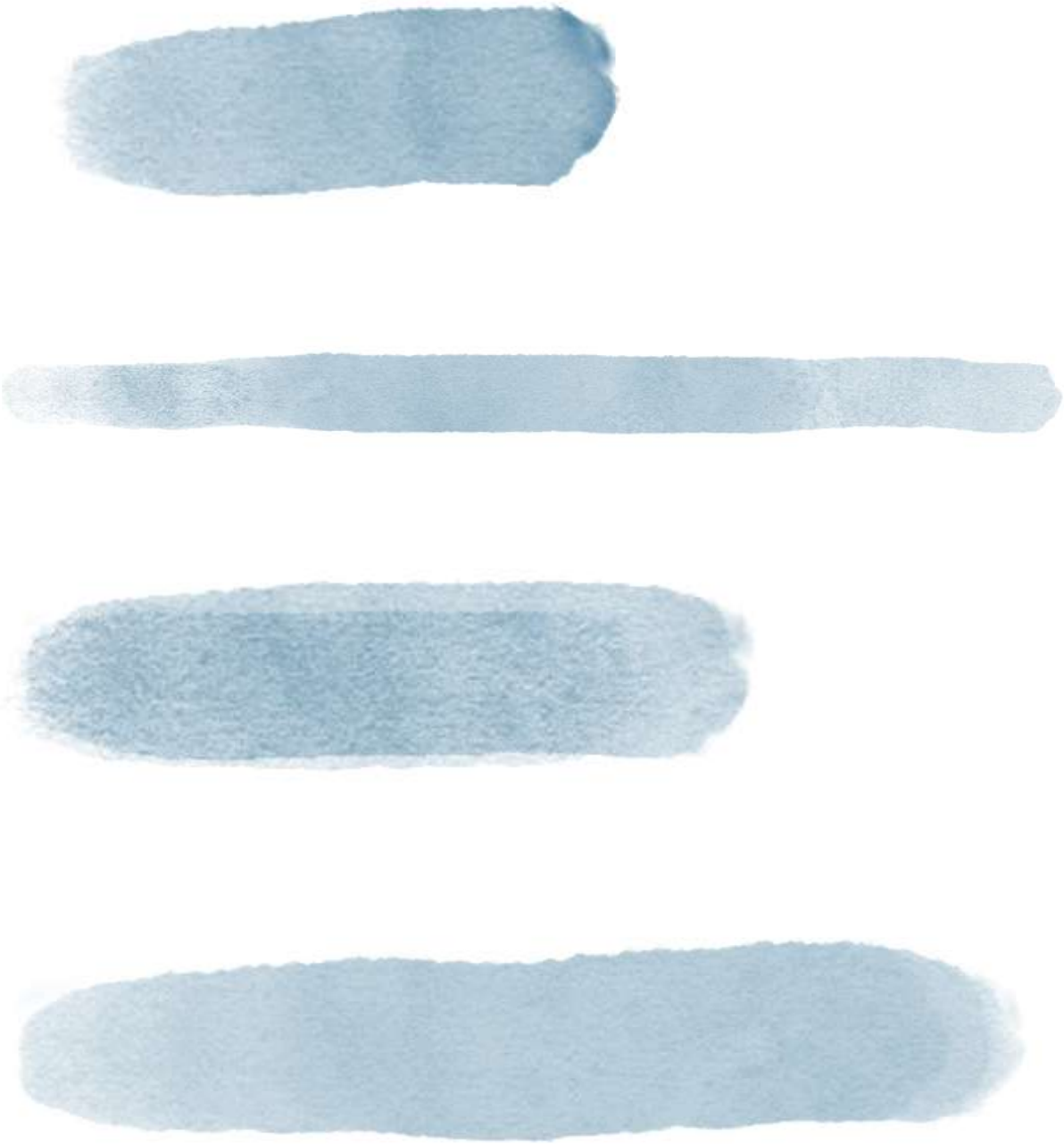
Health

High

Low

With high connectedness and low adversity during development (blue dashed line), the balance of developmental risk is tipped in the direction of lower risk for mental, social, and physical health problems. In contrast, high adversity and minimal connectedness (black dashed line) increases developmental risk and the probability of significant problems in overall health.





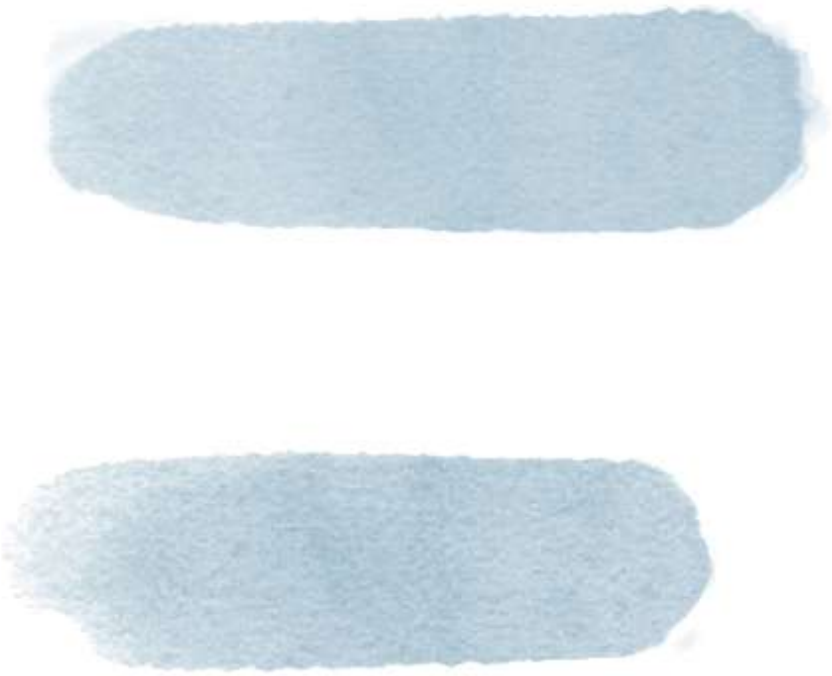


Figure 9

MECHANISMS OF

TRANSGENERATIONAL TRANSMISSION

Genetic

— DNA

Epigenetic (modification and control of gene expression)

— Histone modification

— DNA methylation

Intrauterine

— Maternal milieu (e.g., stress)

— Environmental toxins

— Other (e.g., alcohol, drugs)

Perinatal Experience

— Bonding and attachment (shaping primary regulatory and relational core)

Postnatal

— Family-mediated (e.g., language, values, and beliefs) **Postnatal**

— Education-, community-, and culture-mediated

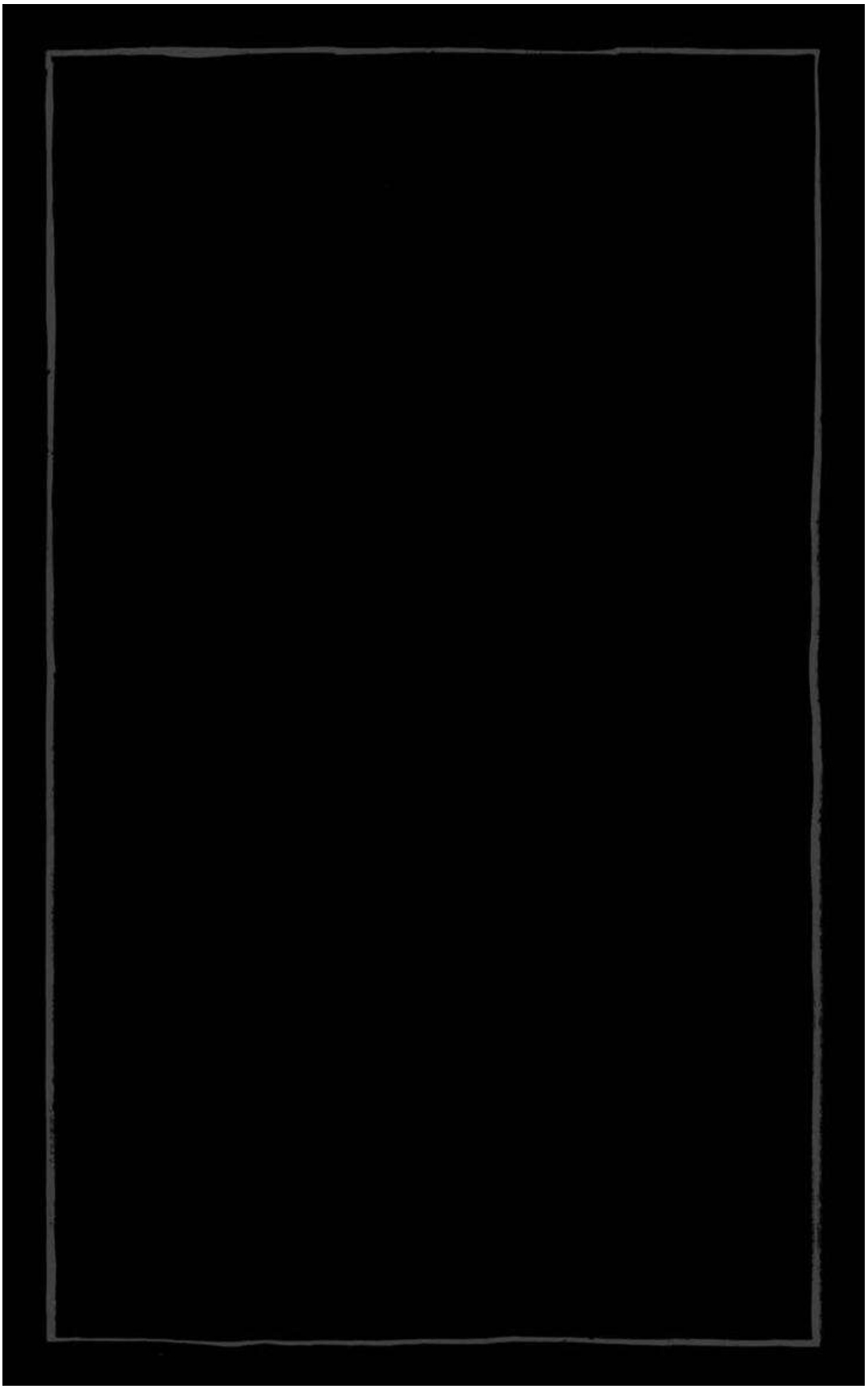


Figure 10

SEQUENCE OF ENGAGEMENT

CORTEX

REASON

LIMBIC

RELATE

DIENCEPHALON

REGULATE

BRAINSTEM

INTEROCEPTION

FIVE SENSES

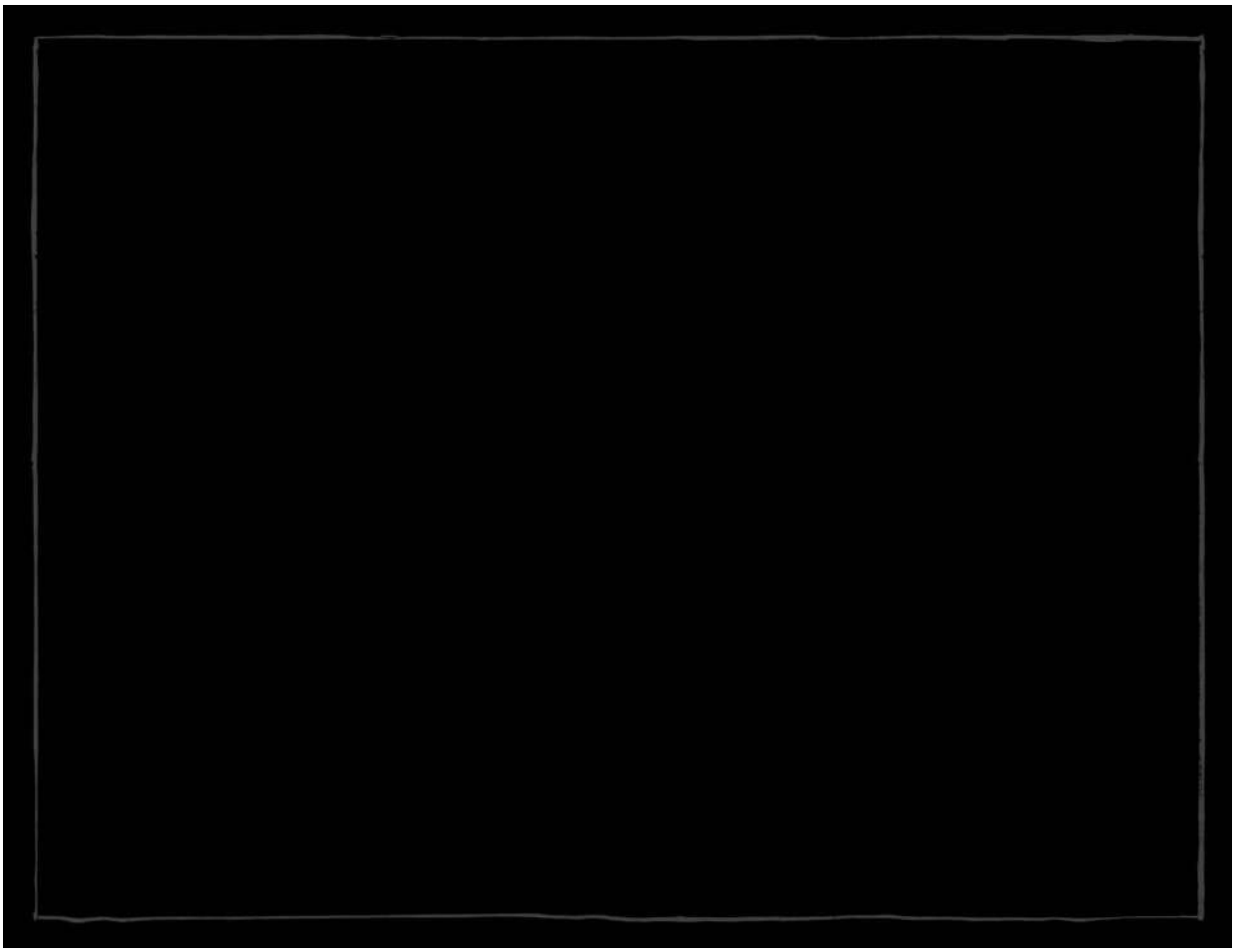
Input from the

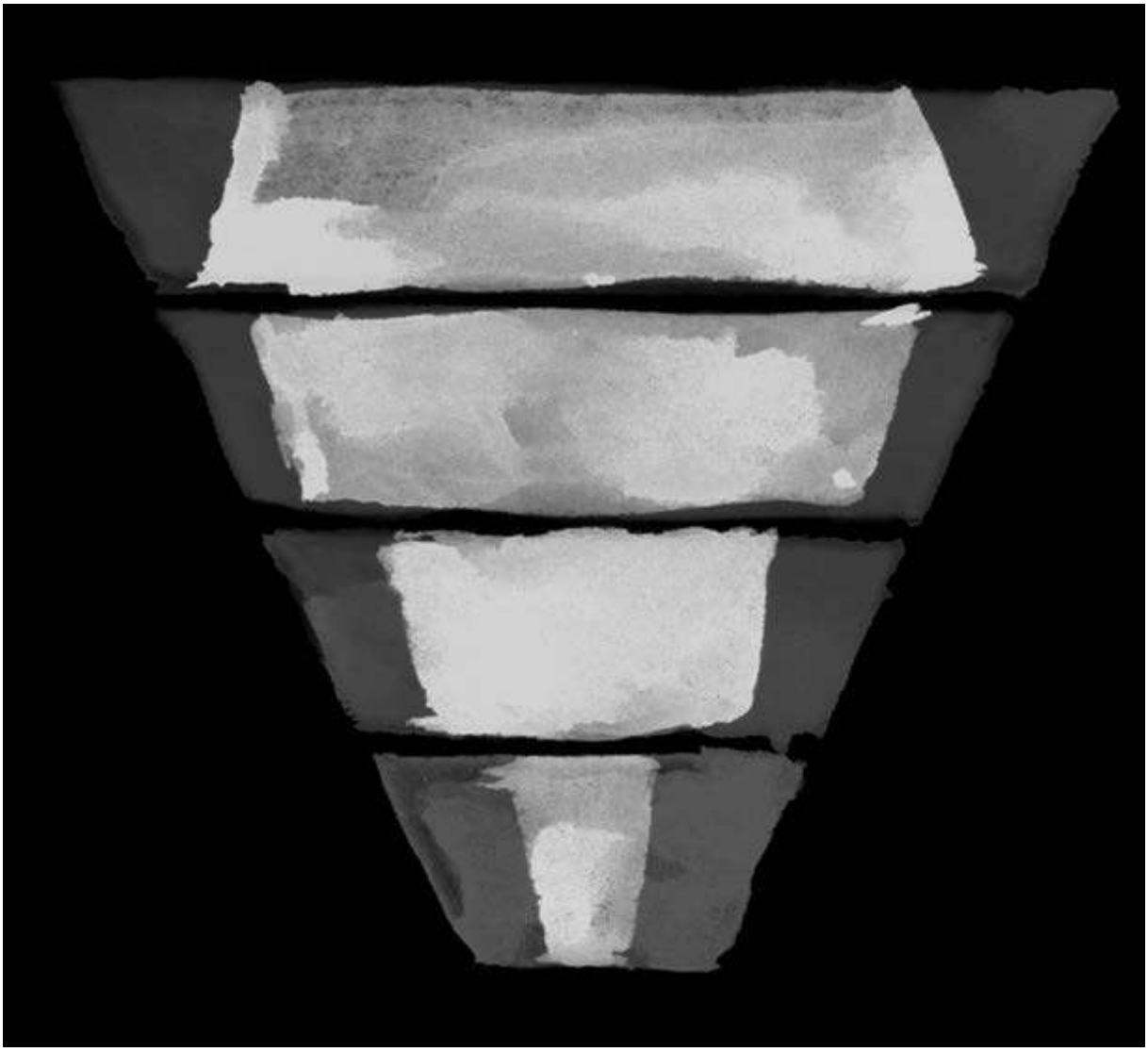
Input from the

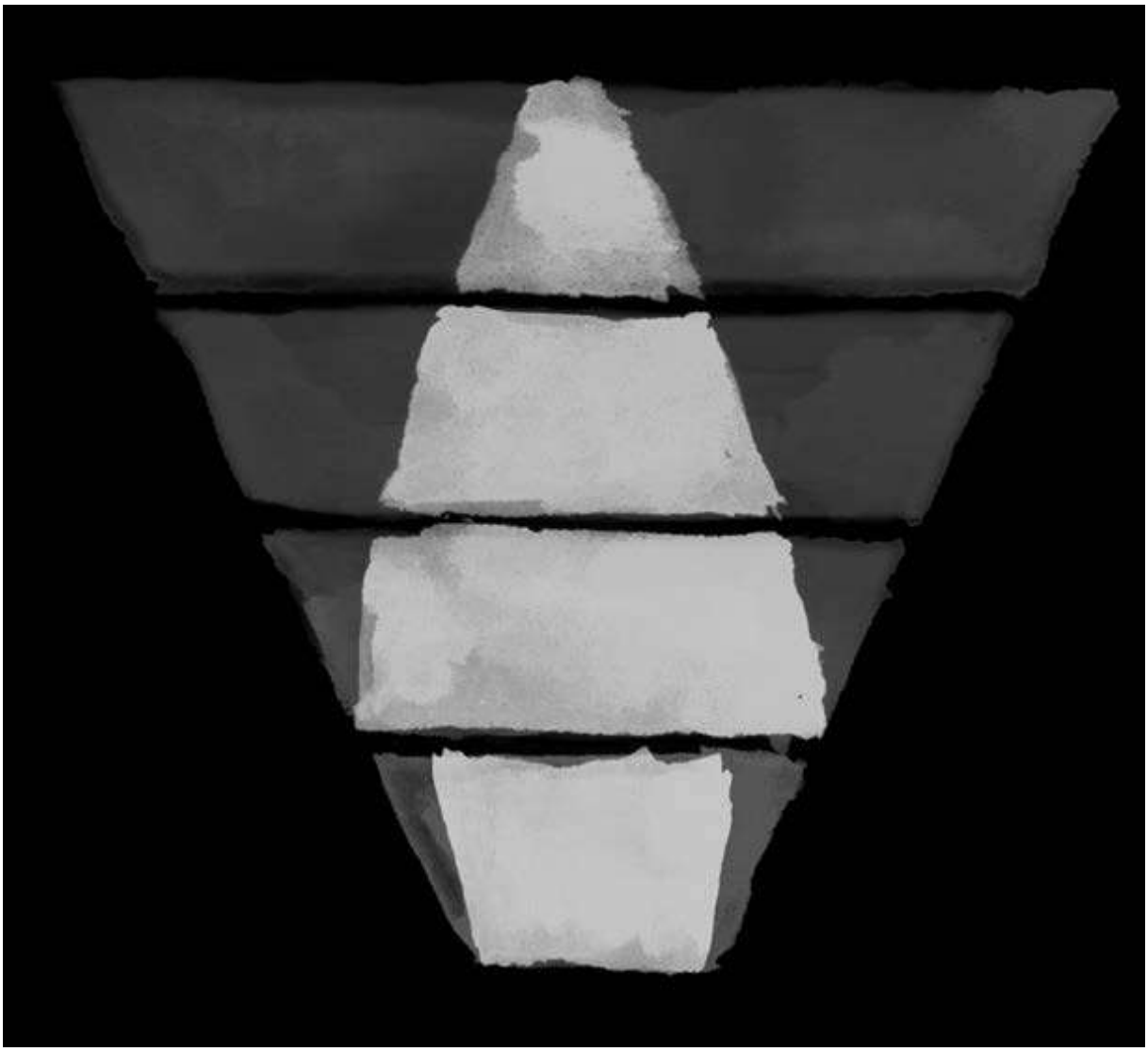
inside world (body)

outside world

Our brain is continually getting input from our body (interoception) and the world (five senses). These incoming signals are processed in a sequential fashion, with the first sorting taking place in the lower brain (brainstem, diencephalon). To reason with another person, we need to effectively get through the lower areas of their brain and reach their cortex, the part responsible for thinking, including problem-solving and reflective cognition. But if someone is stressed, angry, frustrated, or otherwise dysregulated, the incoming input will be short-circuited, leading to inefficient, distorted input to the cortex. This is where the sequence of engagement comes in. Without some degree of regulation, it is difficult to connect with another person, and without connection, there is minimal reasoning. Regulate, relate, then reason. Trying to reason with someone before they are regulated won't work and indeed will only increase frustration (dysregulation) for both of you. Effective communication, teaching, coaching, parenting, and therapeutic input require awareness of, and adherence to, the sequence of engagement.







F i g u r e 1 1

S T A T E D E P E N D E N C E A N D M E M O R Y

C O R T E X

C O R T E X

LIMBIC

LIMBIC

DIENCEPHALON

DIENCEPHALON

BRAINSTEM

BRAINSTEM

1. Regulate

2. Relate

3. Reason

DYSREGULATED

REGULATED

Inefficient access to

Cortical memories

cortical memories

accessible

STATE DEPENDENCE AND ACCESS TO ‘NARRATIVE’ MEMORY

In a fear state (dysregulated), there is a “shutdown” of some of the systems in higher areas of the brain (e.g., cortical). This makes retrieval of previous linear narrative memory inefficient; a common example of this is test anxiety. The content has been stored, but in the moment (e.g., during the test), retrieval is not possible. When the person is regulated, and feeling connected and safe, the stored content is accessible and easier to retrieve.

R E S O U R C E S

Our hope is that this book has caused you to reflect on how you understand yourself and others, and that we have piqued your interest. The scope of trauma-related topics is wide, and the implications of developmental adversity are pervasive and profound. So, certainly we couldn’t cover all of

these in the finite pages of our book; if you want to learn more, here are some good places to start.

FOR MORE READING:

The Boy Who Was Raised as a Dog: And Other Stories from a Child Psychiatrist's Notebook

Bruce D. Perry, M.D., Ph.D., and Maia Szalavitz This book, originally published in 2006 and revised and updated in 2017, traces the evolution of Dr. Perry's work with children and youth impacted by neglect, trauma, and developmental adversity. It is an excellent complement to this book and provides a "deeper dive" into some of the core concepts discussed in *What Happened to You?*

The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma

Bessel van der Kolk, M.D.

Dr. van der Kolk is a pioneer and innovator in the field of trauma.

This classic book, published in 2014, outlines the development of his research, clinical approach, and thinking about the complex effects of trauma on the brain, mind, and body.

Born for Love: Why Empathy Is Essential—and Endangered Maia Szalavitz and Bruce D. Perry, M.D., Ph.D.

R E S O U R C E S

Published in 2010, this book uses stories and case examples to illus-initiative that is a collaboration between the Society for Neurosci-trate the crucial role that empathy—and love—plays in development ence, the Kavli Foundation, and the Gatsby Charitable Foundation.

and health. The authors emphasize the importance of being aware of With materials for teachers, students, and professionals, this is a the shifting of social connectedness in the modern world and address superb starting point for a deeper dive into the brain.

many of the topics related to “connectedness” discussed in *What Happened to You?*

PREVENTION OF ABUSE AND SUPPORTS FOR FAMILIES: *Prevent Child Abuse America (Preventchildabuse.org):* This is the *Together: The Healing Power of Human Connection in a* nation’s oldest and largest organization dedicated to prevention. This *Sometimes Lonely World*

site is a great starting place to learn more about innovative, support-Vivek H. Murthy, M.D.

ive programs for families proven to reduce abuse and neglect.

In this book, published in 2020, Dr. Vivek H. Murthy, the Surgeon General for Presidents Obama and Biden, addresses the importance of **ADVERSE CHILDHOOD EXPERIENCES (ACES):**

human connection and the impact of loneliness on our physical and emo-Adverse Childhood Experiences section of the Violence Prevention tional health. These messages echo many of the conversations in *What Branch of the CDC (https://www.cdc.gov/violenceprevention/aces/index Happened to You?* and *Born for Love*, but his perspective as a physician

.html): This site is a treasure trove of educational resources, research arti-leader examines these issues from a unique and important angle.

cles, and policy implications related to adverse childhood experiences. It is the most reliable resource for accurate information about ACEs.

The Deepest Well: Healing the Long-Term Effects of Childhood Adversity

THE NEUROSEQUENTIAL MODEL AND THE WORK

Nadine Burke Harris, M.D.

OF DR. PERRY:

This book, published in 2018, describes how Dr. Harris, the first Sur-The Neurosequential Network (Neurosequential.com): This site out-geon

General of California, came to learn about the 1998 ACE studies lines the research, clinical programs, and other educational activities and the correlations these studies documented between childhood of the Neurosequential Network (a community of practice spanning trauma and risk for physical health problems. More important, she 28 countries and dozens of disciplines).

advocates for changes in health care that will help identify, prevent, and address the impact of adverse childhood experiences on health.

Visit *WhatHappenedtoYouBook.com* for a complete list of publications referenced in this book, and for more resources related to trauma, TO LEARN MORE ABOUT:

resilience, and healing.

THE BRAIN AND NEUROSCIENCES:

BrainFacts.Org: This is the most reliable, accurate, and accessible resource for anyone interested in the brain. It is a public information

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