

Human Emotion

Psychology 3131
Professor June Gruber



**Do emotions have a
function?**



Yes!

“Reason is and ought to be the slave of the passions, and can never pretend to any other office than to serve and obey them.”

Hume (1739). A Treatise of Human Nature, Book II (p. 415)



Human Emotion

Function of Emotion

Are we evolved to be emotional?



Roadmap

Course Logistics

Evolutionary Approach

Evolution and Emotion

Cultural Universality

Take-Away Qs

Logistics

Cell Phones Off & Away

Laptops Wifi Turned Off

Logistics

TED Talk Alert: “You aren’t at the mercy of your emotions”



Lisa Feldman Barrett

Logistics

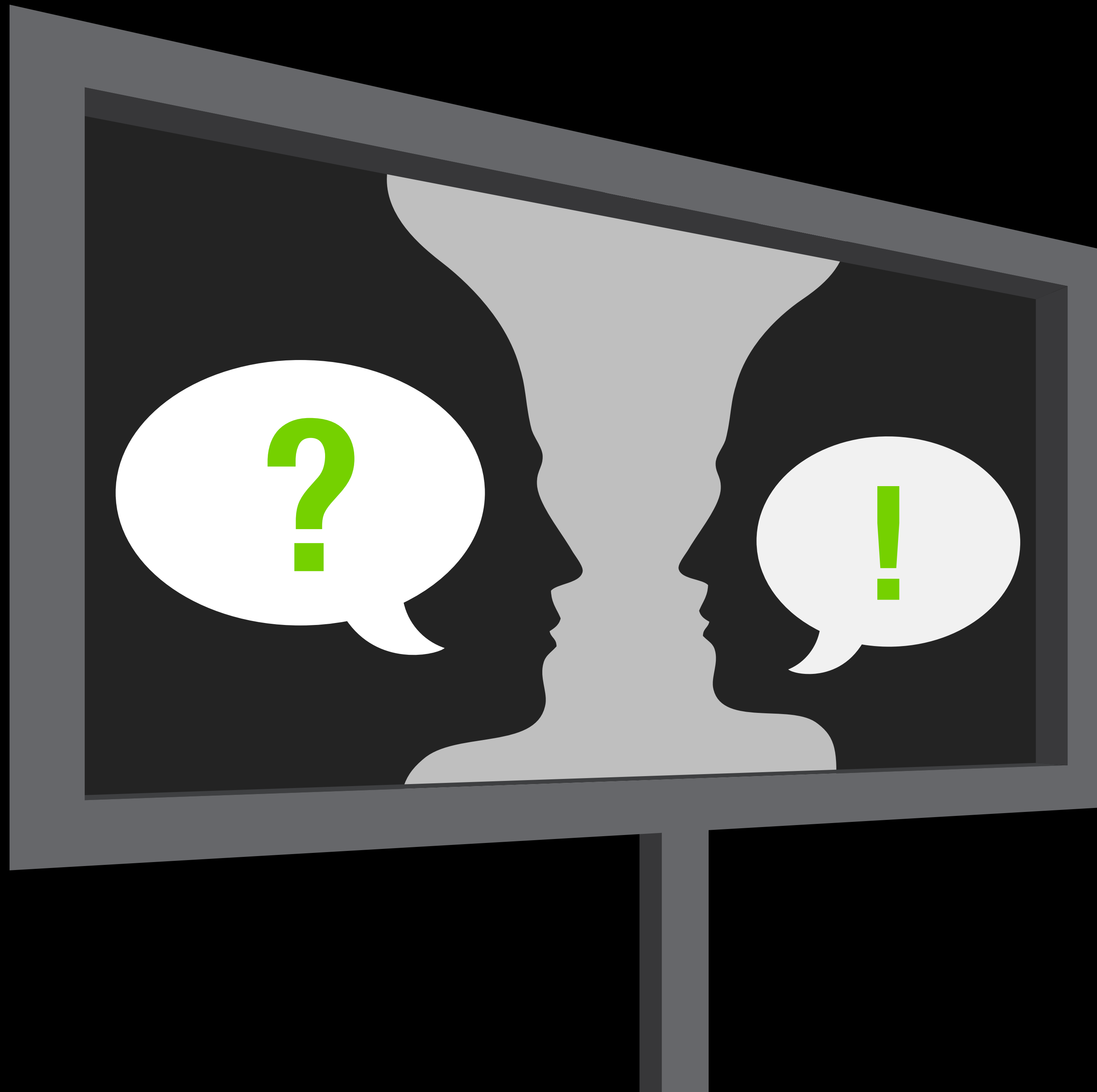
Your Feedback Matters

Opportunities throughout semester:

- Check-in quick surveys periodically
- Peer observation and/or classroom interview
- FCQs end of semester

Course Logistics

Outreach Project Handout



Experts In Emotion

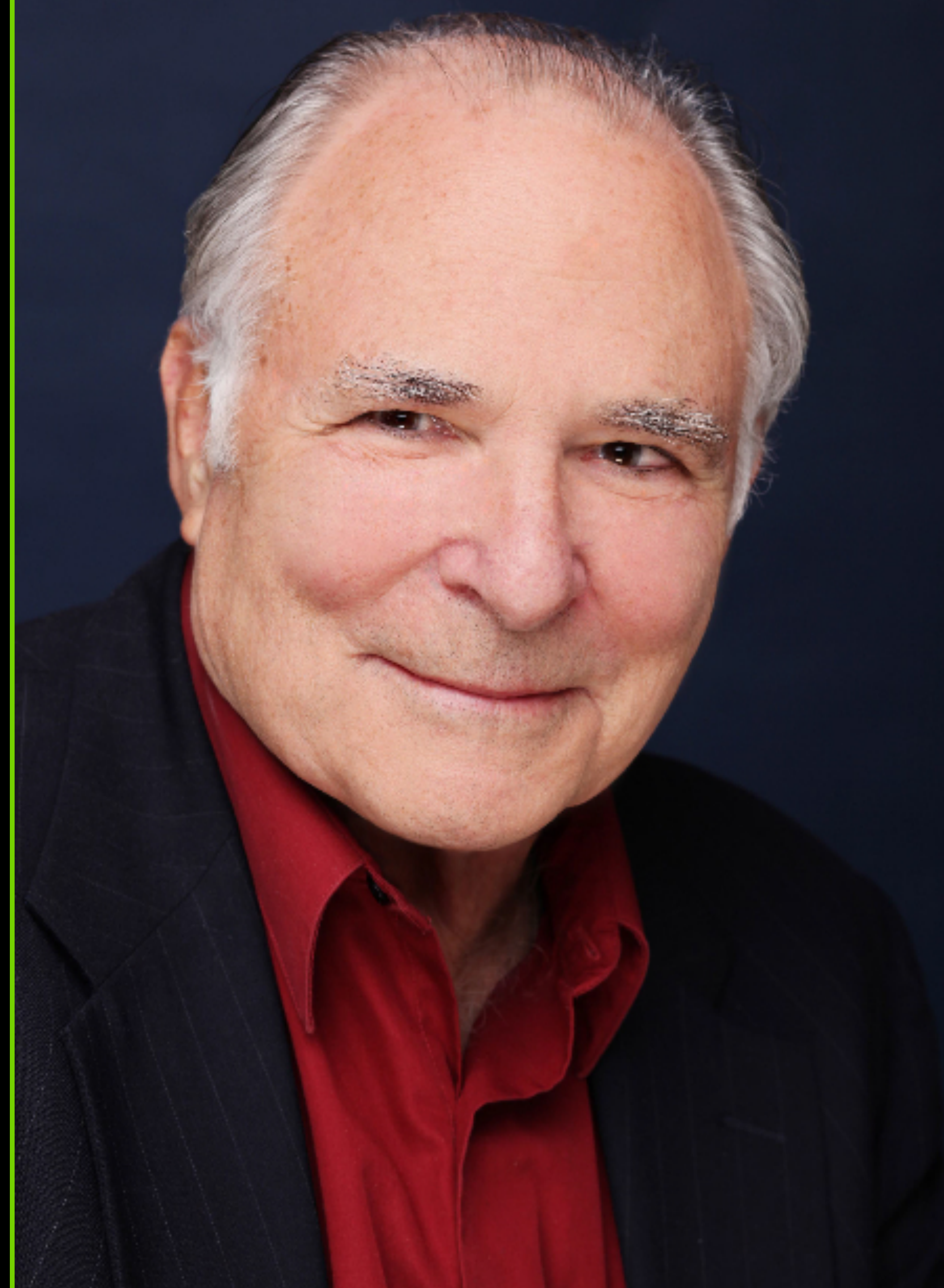
***EXTRA CREDIT
OPPORTUNITY***

Experts In Emotion Interview

Dr. Paul Ekman

University of California, San Francisco
Paul Ekman Group, LLC

Universality of Emotion



Roadmap

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Take-Away Qs

Theories of Emotion Timeline

Ancient Greek

Enlightenment

Darwin

William James

James-Lange

Cannon-Bard

Schachter-Singer

Lazarus

Theories of Emotion Timeline

Ancient Greek

Enlightenment

Darwin

William James

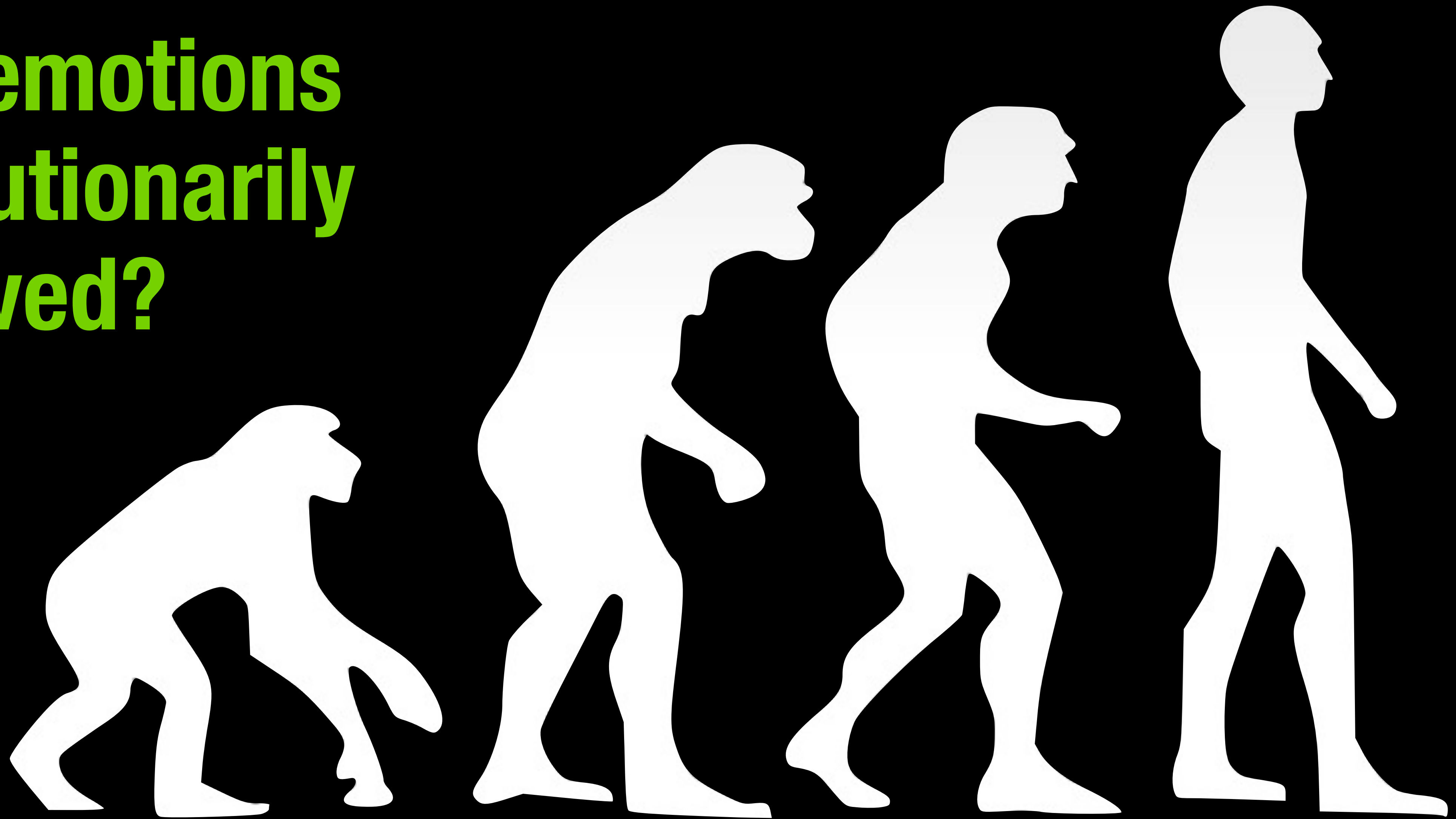
James-Lange

Cannon-Bard

Schachter-Singer

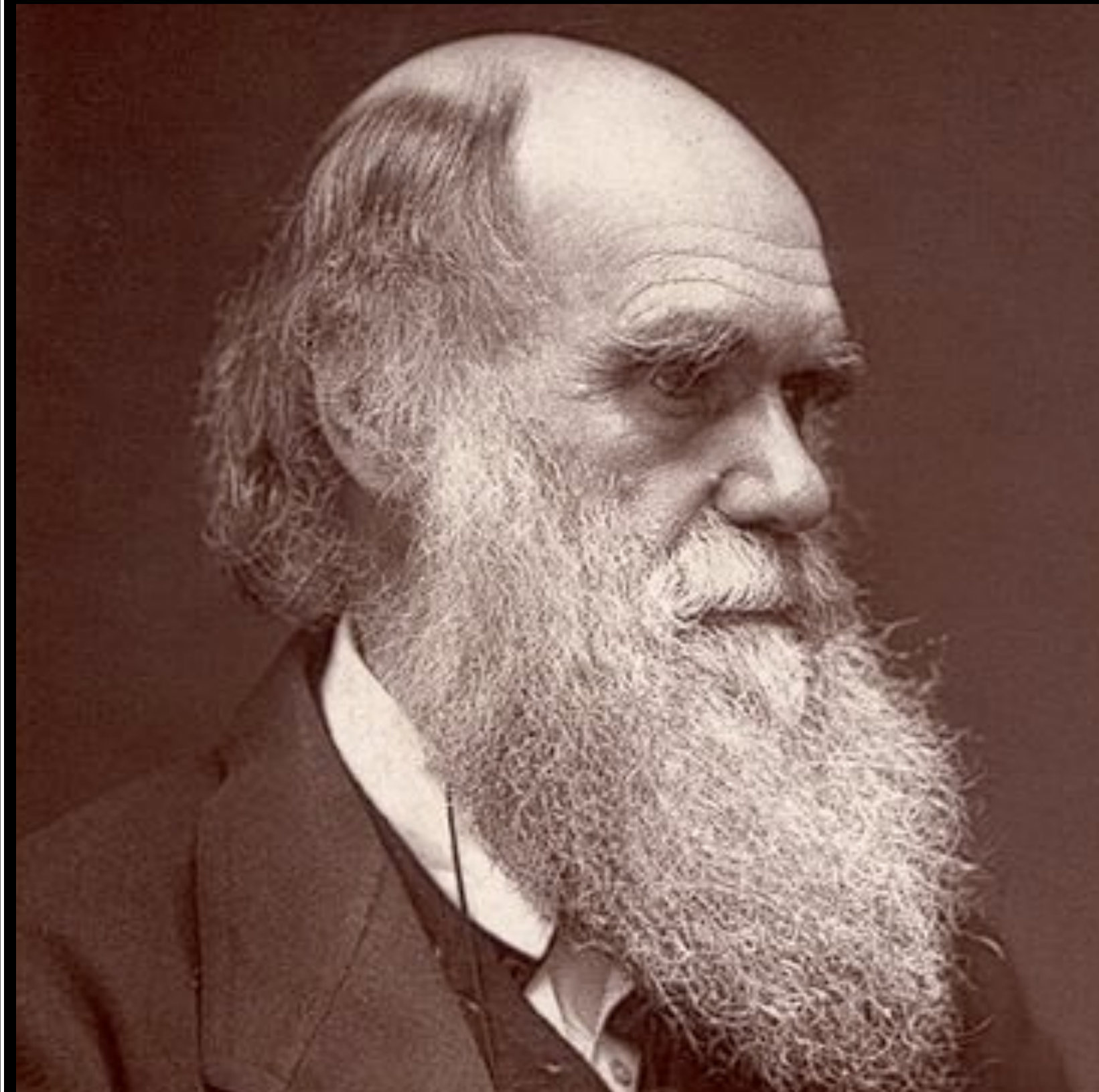
Lazarus

**Are emotions
evolutionarily
evolved?**



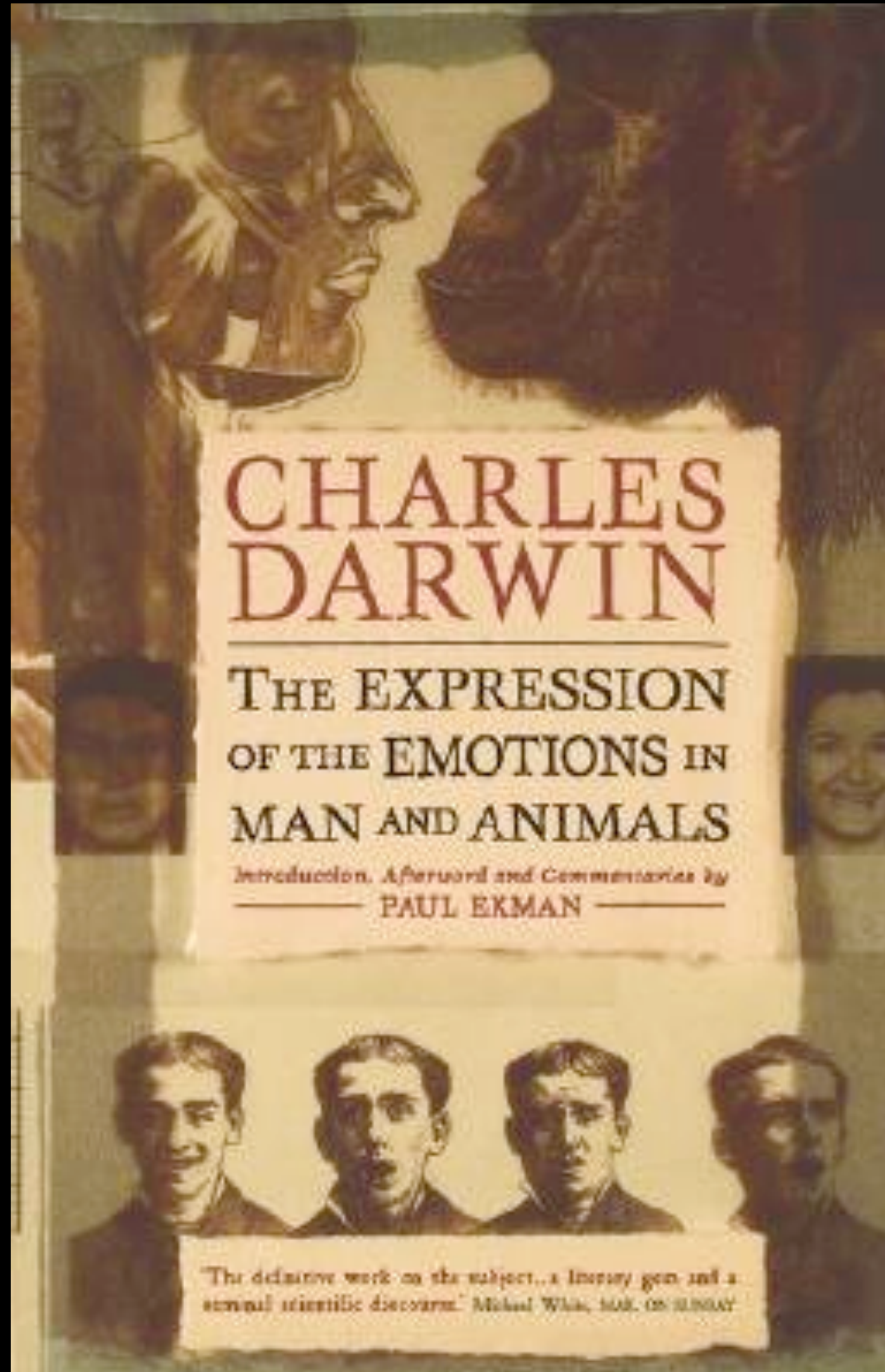
Theories of Emotion Timeline

Darwin



Evolutionary Approach

Emotions evolutionarily evolved, serve survival purpose



bestseller of its time
(1872)

Measurement of Emotion

data

healthy and
duals

faces

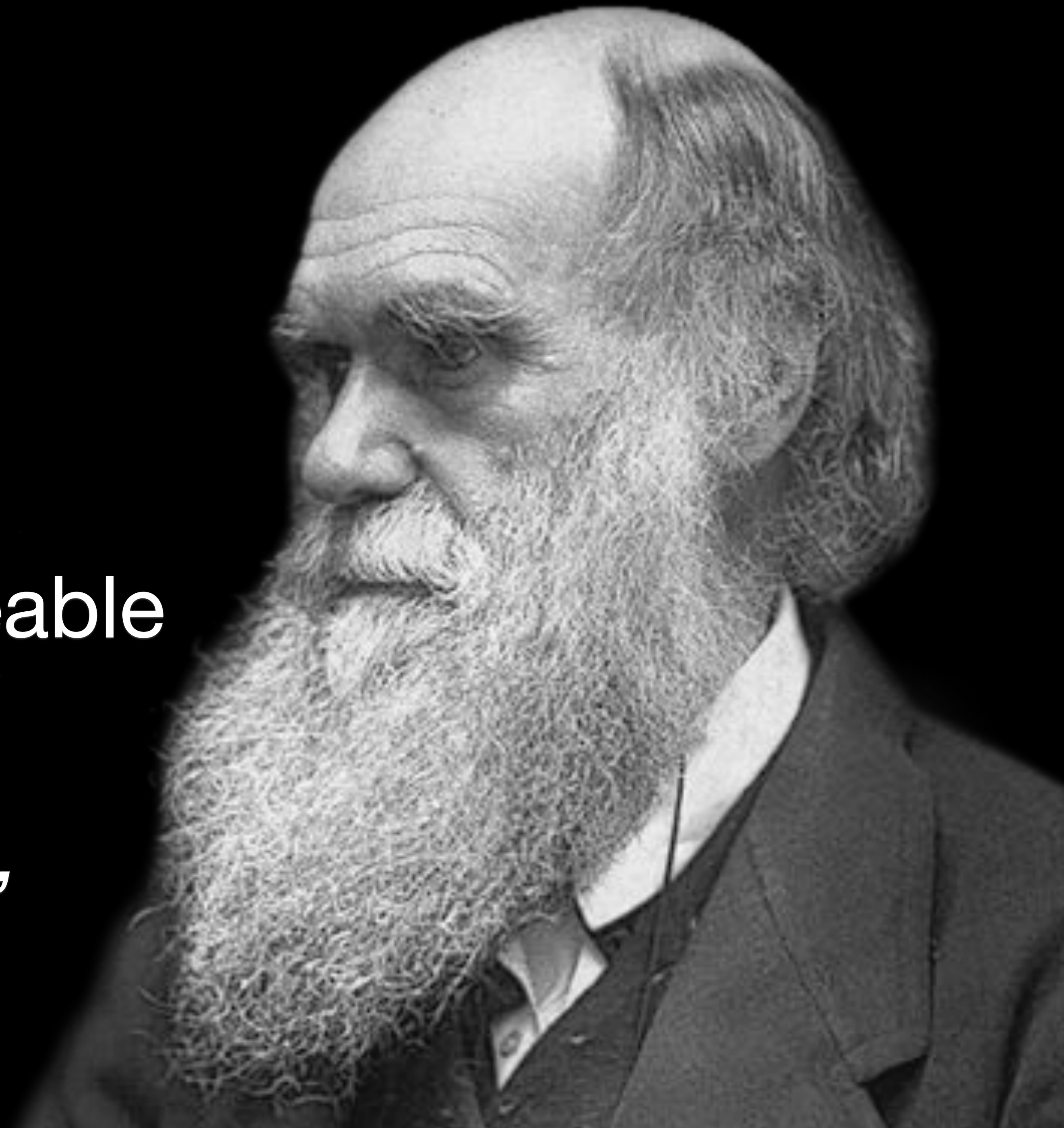
expressions in Darwin's
death)

1. Darwin's Three Principles

Darwin's Three Principles

I. Principle of Serviceable
("Useful") Habit

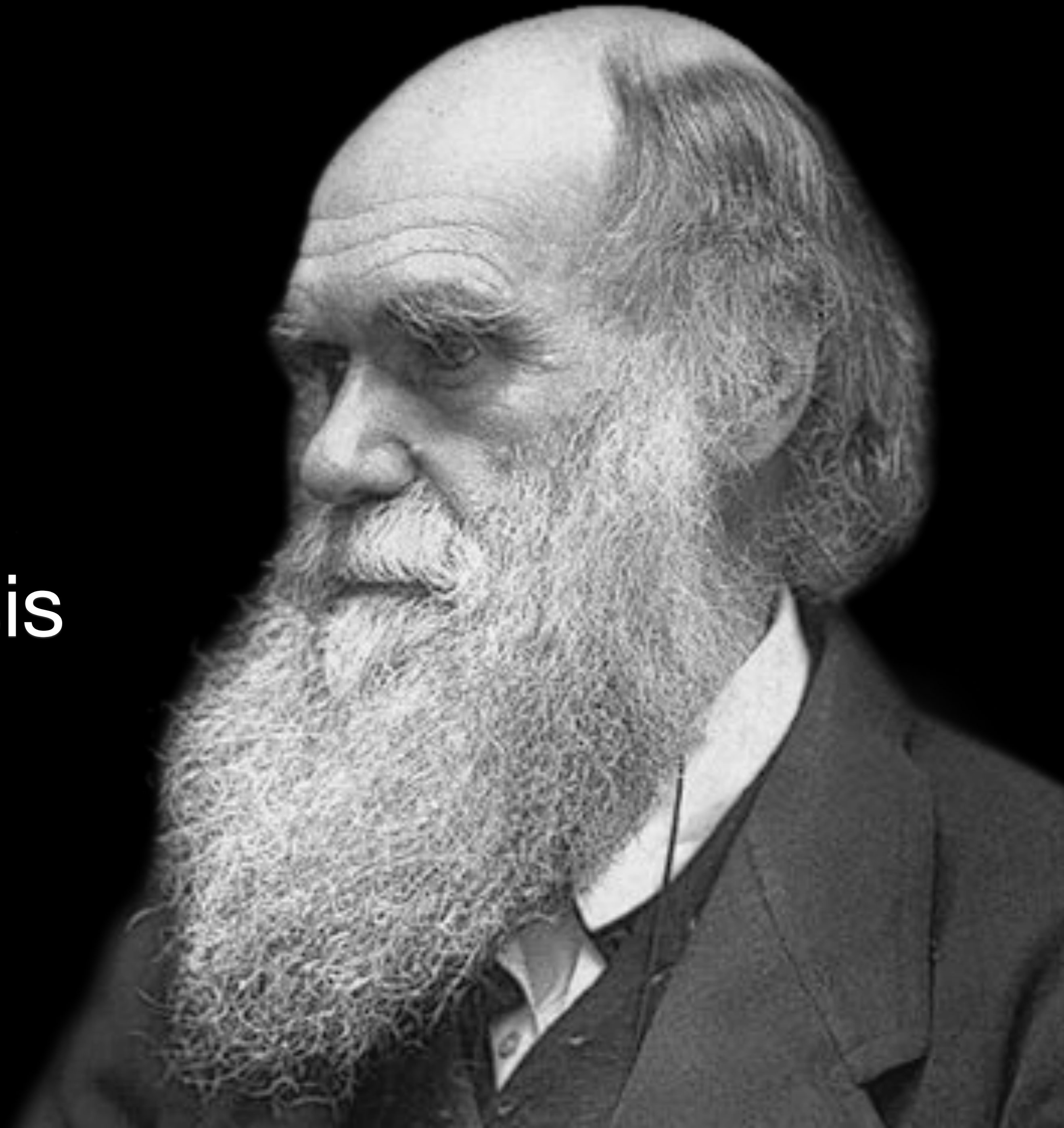
*Ex: disgust expression,
frowning brows*



Darwin's Three Principles

II. Principle of Antithesis

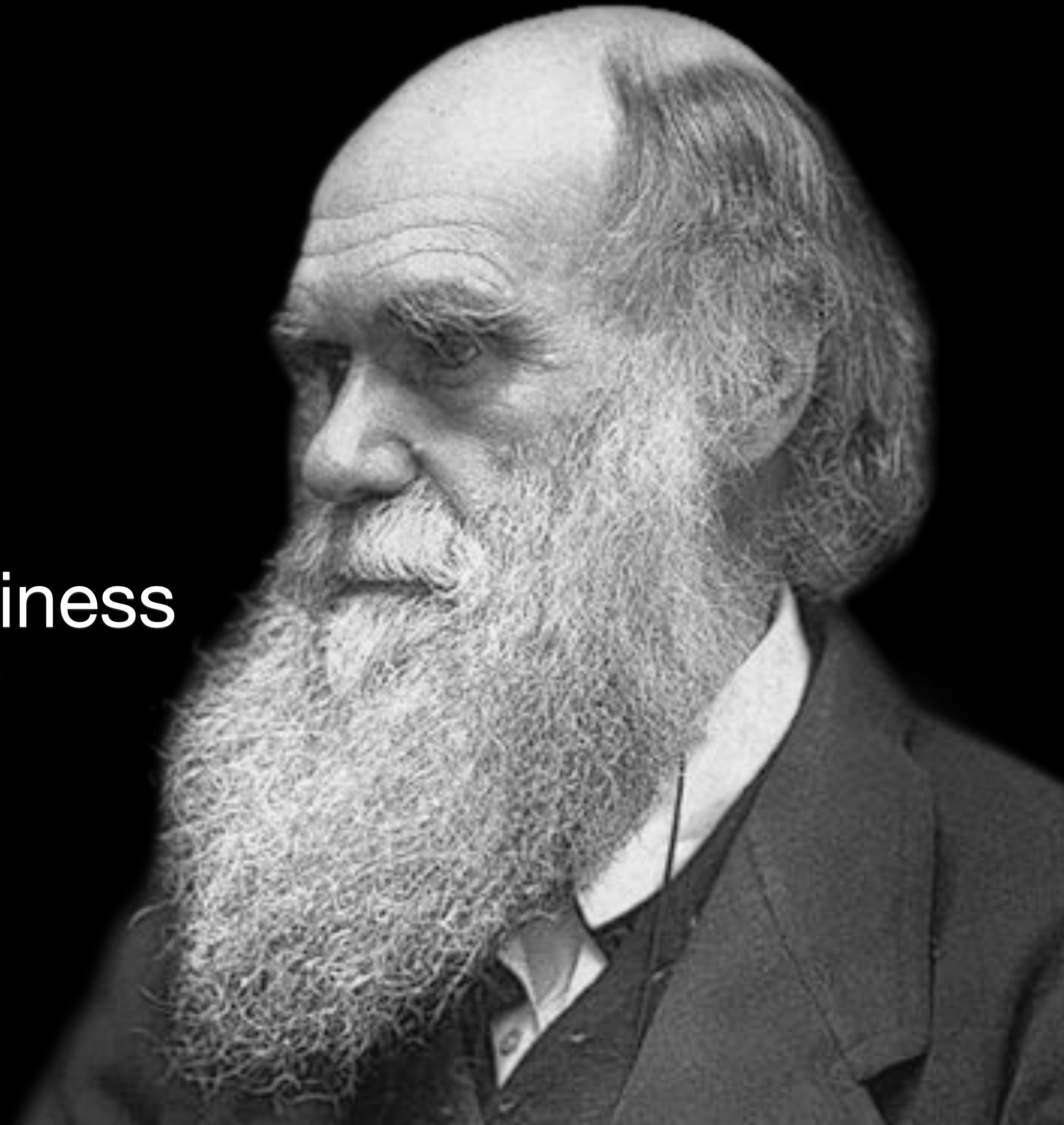
Ex: shrugging shoulders



Darwin's Three Principles

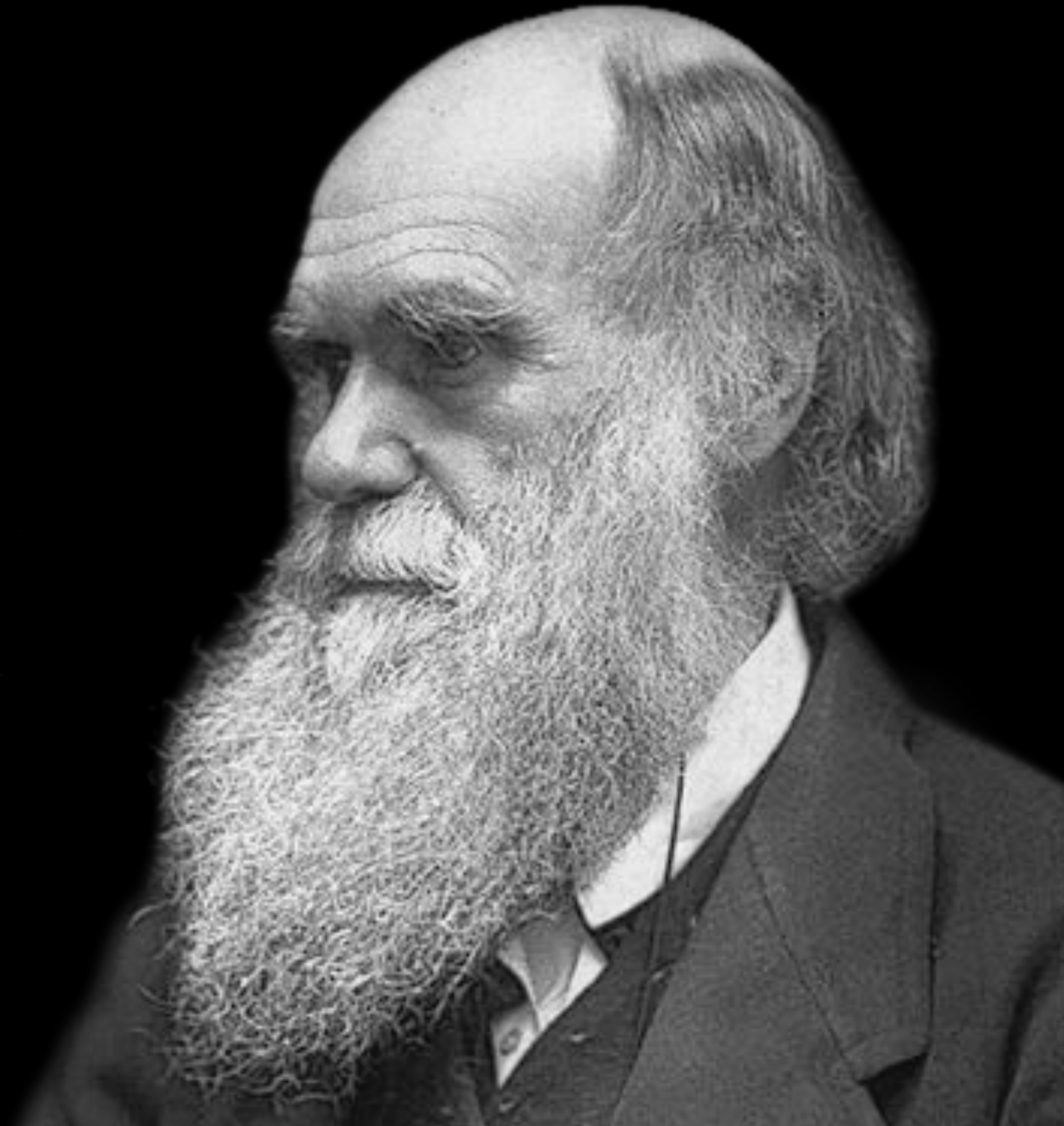
III. Principle of Involuntariness
("Nervous discharge")

Ex: foot tapping



Darwin's Three Principles

**Supportive
Evidence**



Example 1

Inheritance of Expressions



Example 2

Instinctive Recognition of Emotion

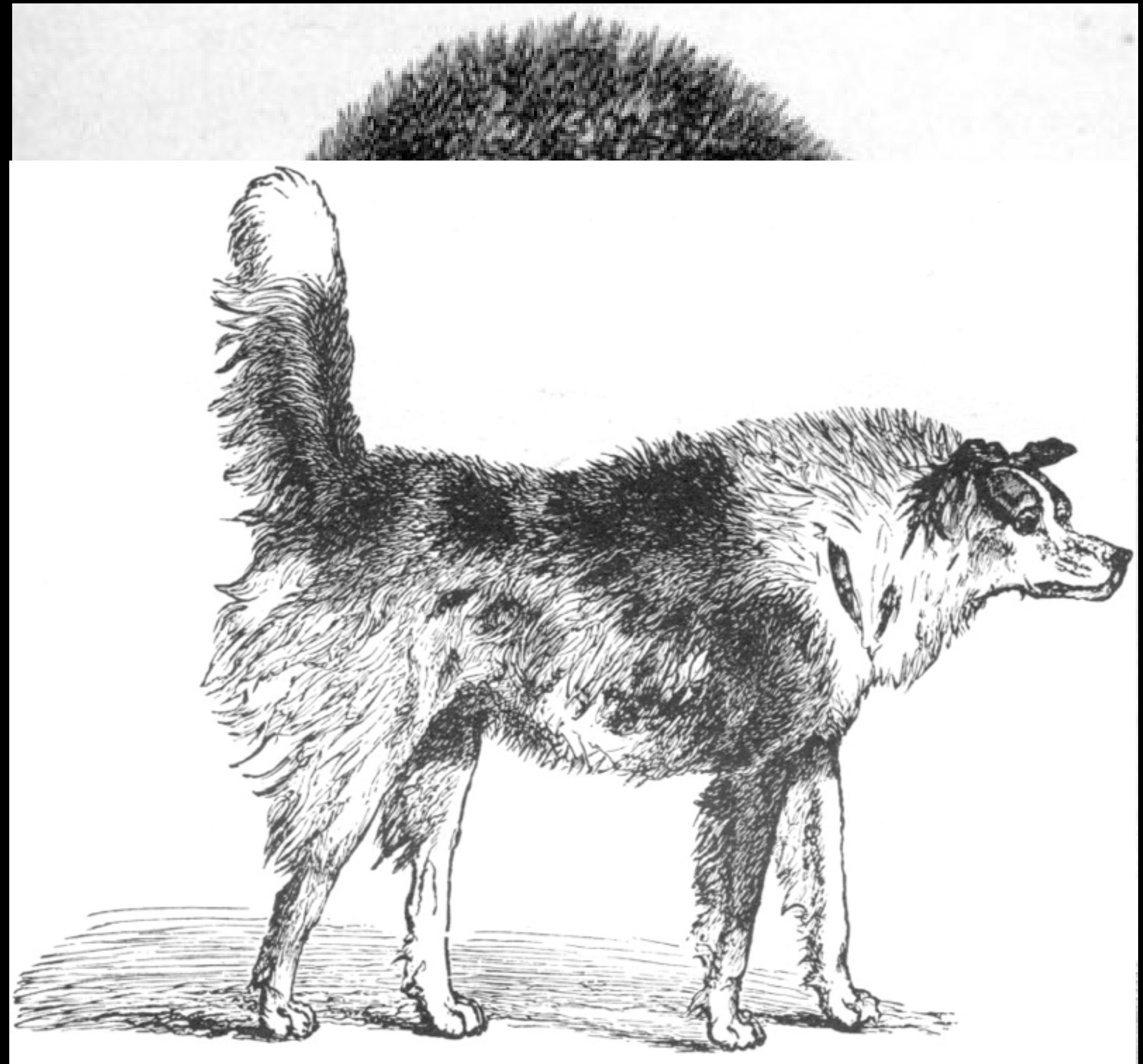
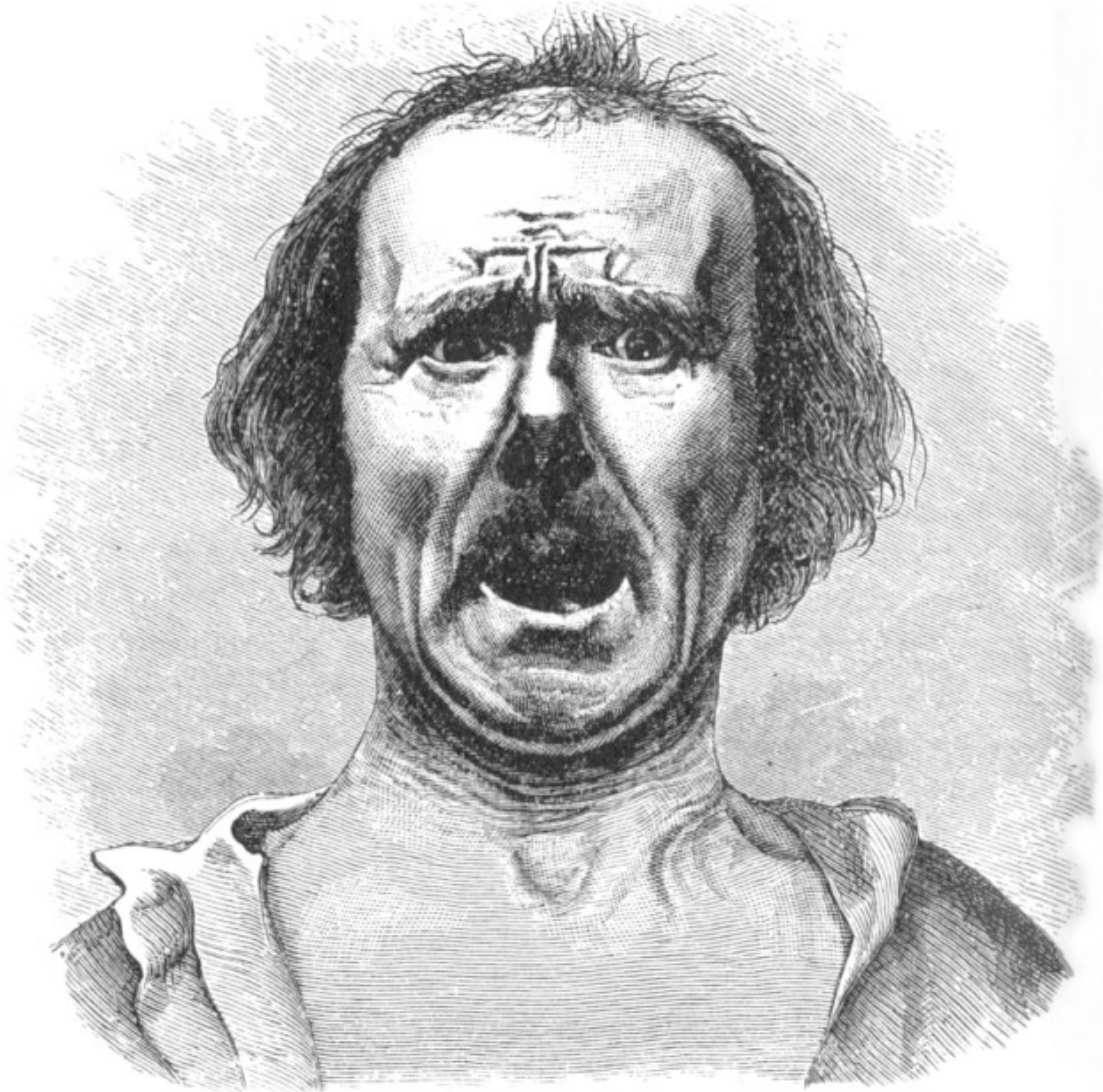


Fig. 15. Cat terrified at a dog. From life, by Mr. Wood.



2



1



3



5



4



6

Environment of Evolutionary Adaptedness (EEA)

Environment of Evolutionary Adaptedness (EEA)

Our current **emotions are a collection of adaptations**

Adaptation: *“A characteristic that has arisen through and been shaped by natural and or sexual selection. It regularly develops in members of the same species because it helped to solve problems of survival and reproduction in the evolutionary ancestry of the organism.”*

(Williams, 1966)

Each adaptation has evolved to meet challenges faced in the EEA





EEA Properties



EEA Properties

1. Vulnerability of Offspring



EEA Properties

2. Monogamous Bonds



EEA

Properties

**3. Emergence
of Caring
and Compassion**



EEA Properties

4. Flattening of Social Hierarchy



EEA Properties

5. Need for Collective Action





EEA Properties



Summary - Evolutionary Approach

Gene Replication

Summary - Evolutionary Approach

Gene Replication

Selection Pressures

Summary - Evolutionary Approach

Gene Replication

Selection Pressures

Natural Selection Pressures

Summary - Evolutionary Approach

Gene Replication

Selection Pressures

Natural Selection Pressures

Sexual Selection Pressures

Summary - Evolutionary Approach

Gene Replication

Selection Pressures

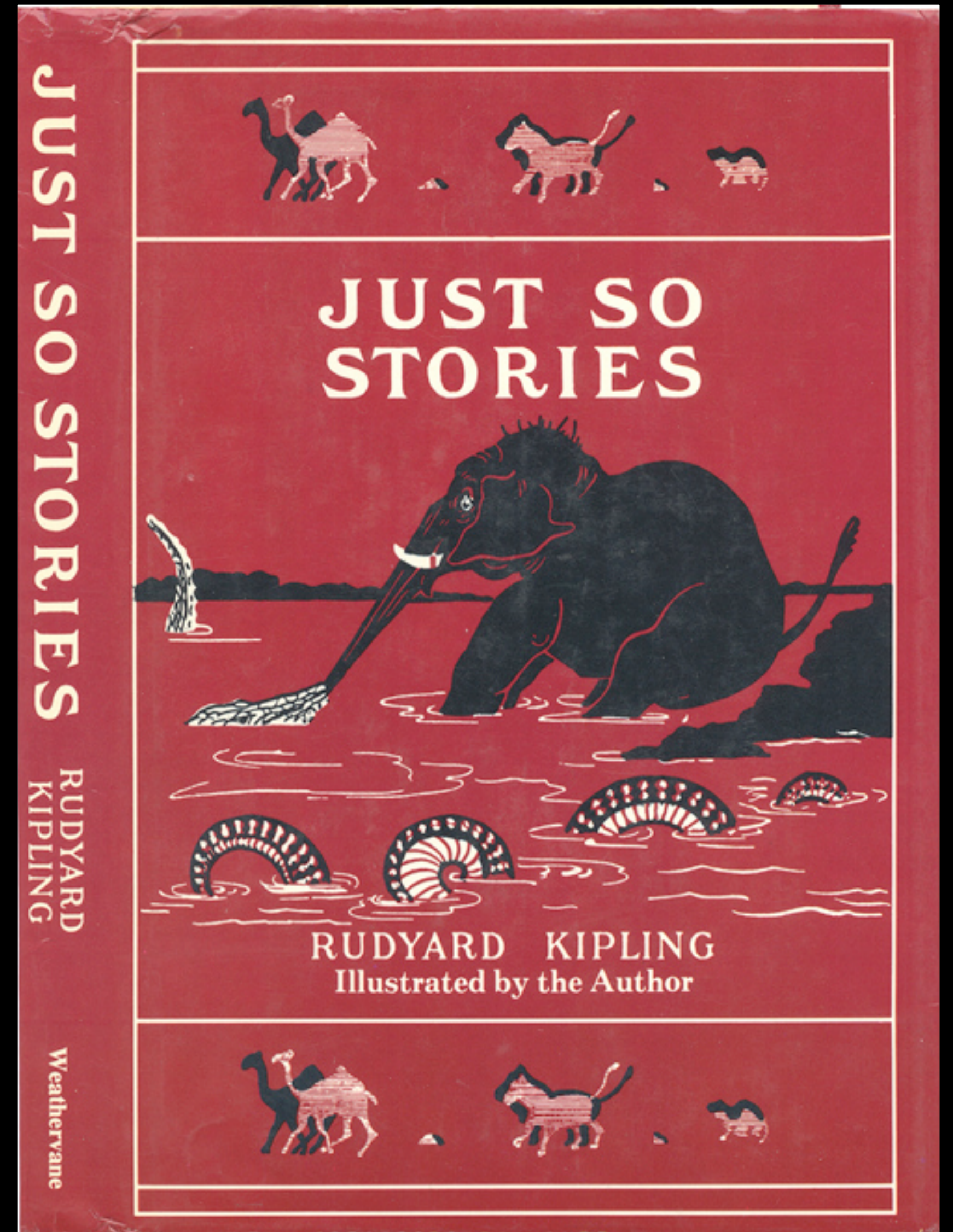
Natural Selection Pressures

Sexual Selection Pressures

Group Selection Pressures

Criticisms of Evolutionary Theory

Just-So Story

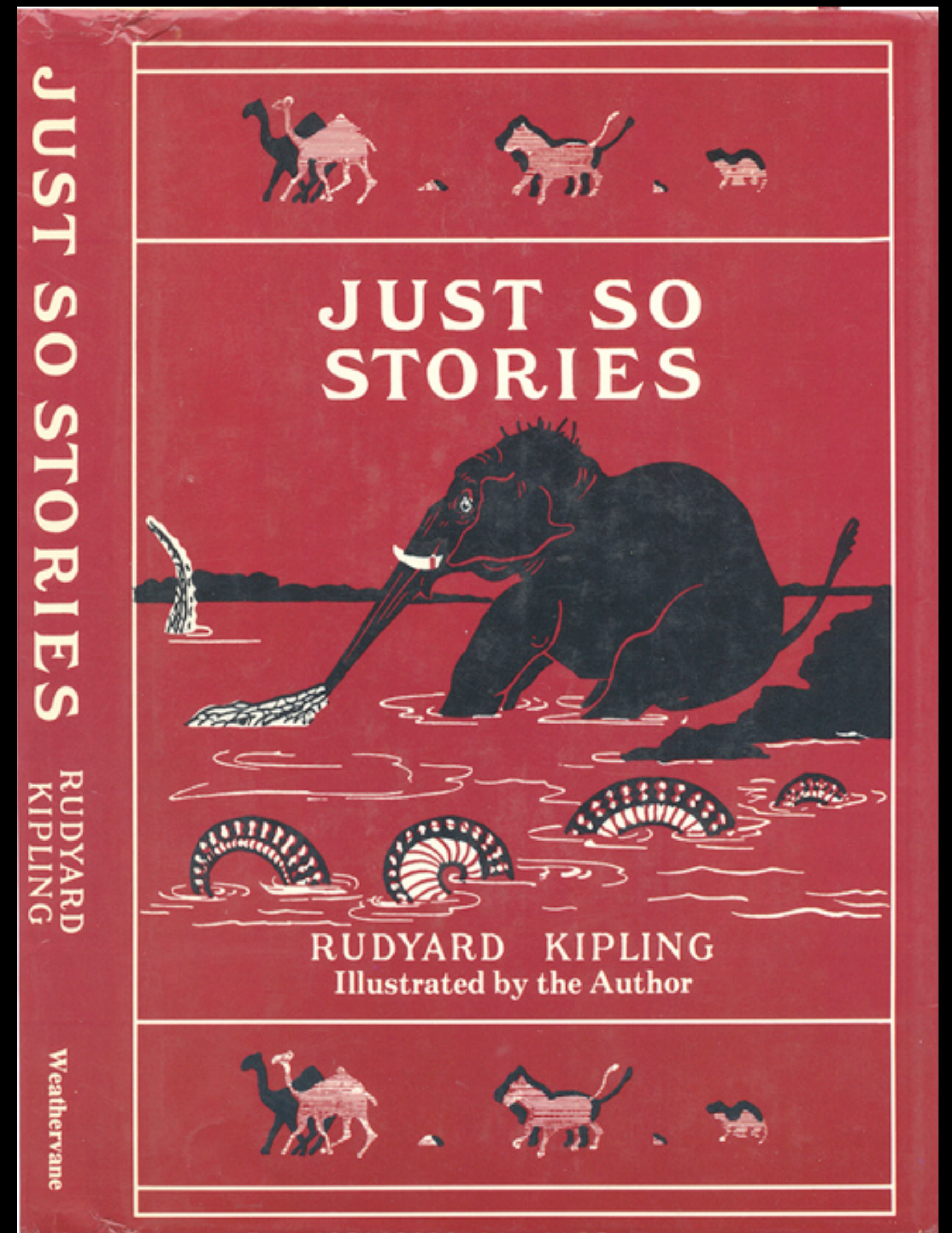


Criticisms of Evolutionary Theory

Just-So Story

“Evolutionary psychologists provide 'just so' stories to explain everything about human behavior, and all without the troublesome need to assemble proof. ...we can run fast because our ancestors had to escape cave bears, got smart because they had to know where the cave bears were, and got sexy because they could rescue cave babes from the cave bears.”

-Dr. Mezmer's Guide to Bad Psychology



Roadmap

Course Logistics

Evolutionary Approach

Evolution and Emotion

Cultural Universality

Take-Away Qs

Evolution & Emotion

Tooby & Cosmides

“An emotion is a bet placed under conditions of uncertainty: It is the evolved mind’s bet about what internal deployment is likely to lead to the best average long-term set of payoffs, given the structure and statistical contingencies present in the ancestral world when a particular situation was encountered.”



Evolution & Emotion

Tooby & Cosmides

Focused on environment in which people evolved to understand emotional origins

- Savannah
- Hunter-gatherer
- Strong social network



Evolution & Emotion

Tooby & Cosmides

“[Emotion] is the statistical composite of selection pressures that caused the genes underlying the design of an adaptation to increase in frequency until they became species-typical or stably persistent.”

(Tooby & Cosmides, 1990)



Evolution & Emotion

Tooby & Cosmides

Emotions as hard-wired “programs”

Mind is composed of a variety of modules, or mini “programs” to solve recurring evolutionary issues. Programs are “turned on/triggered” by certain elicitors in our environment.



Evolutionary & Emotion

Tooby & Cosmides

EXAMPLE: FEAR

“Fear Program” triggered
by snake elicitor.



Evolution and Emotion

Functional Approach

FEAR

SADNESS

DISGUST

ANGER

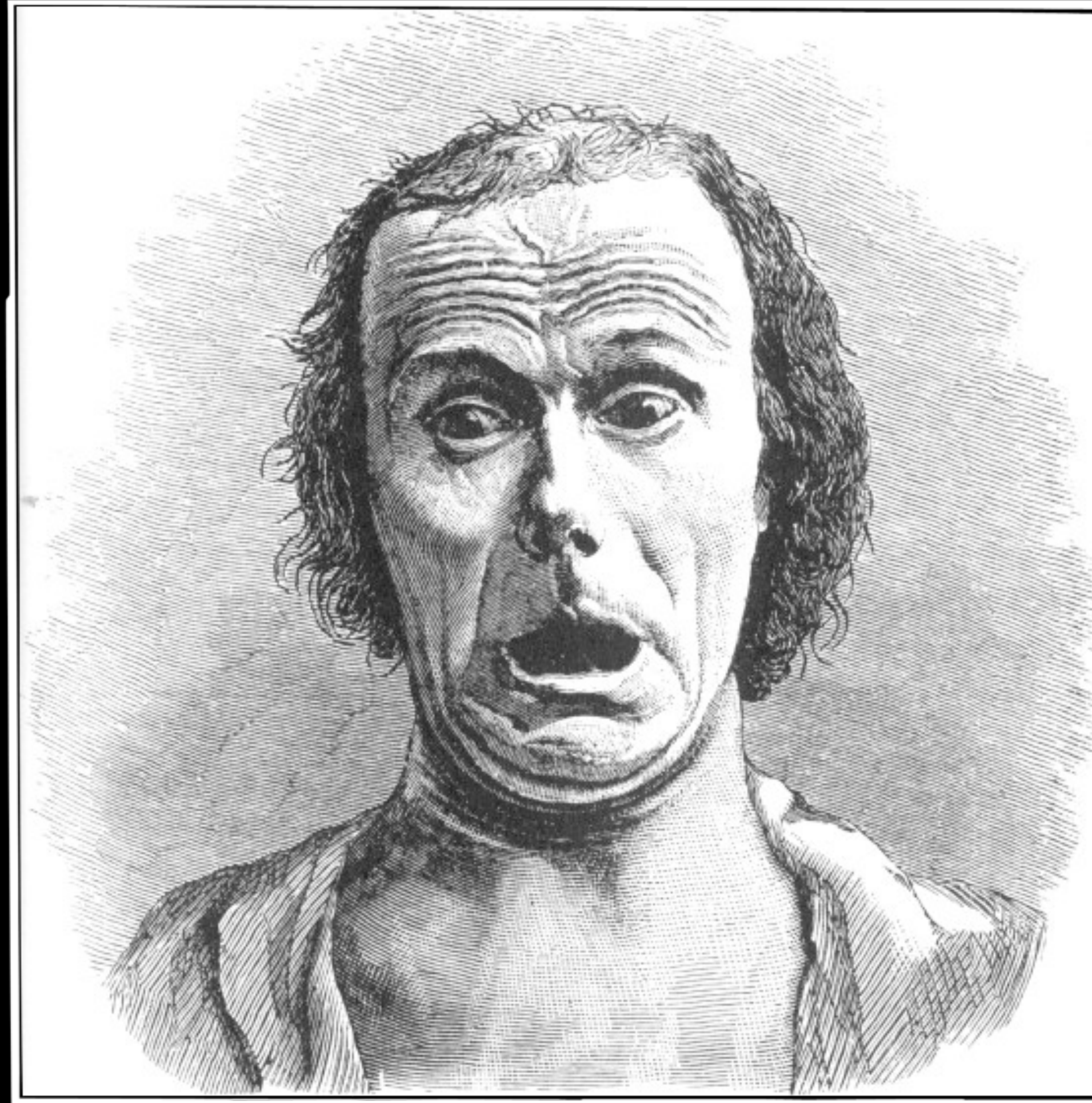
HAPPY

SURPRISE

Fear



Fear



Fear

Recurrent Evolutionary Situation

Hearing cues associated with predator

Appraisal

This is unsafe
This is dangerous
Don't attack!

Behavior

FLIGHT-or-fight reaction

Physiology

Increased blood flow to periphery,
Increased oxygen volume

Function

Escape predator, Safety, Defend



Sadness



Sadness



Recurrent Evolutionary Situation

Loss of something valued (person/object/
place)

Appraisal

I need comfort
I miss that

Behavior

Motor slowing and retardation
Withdrawal

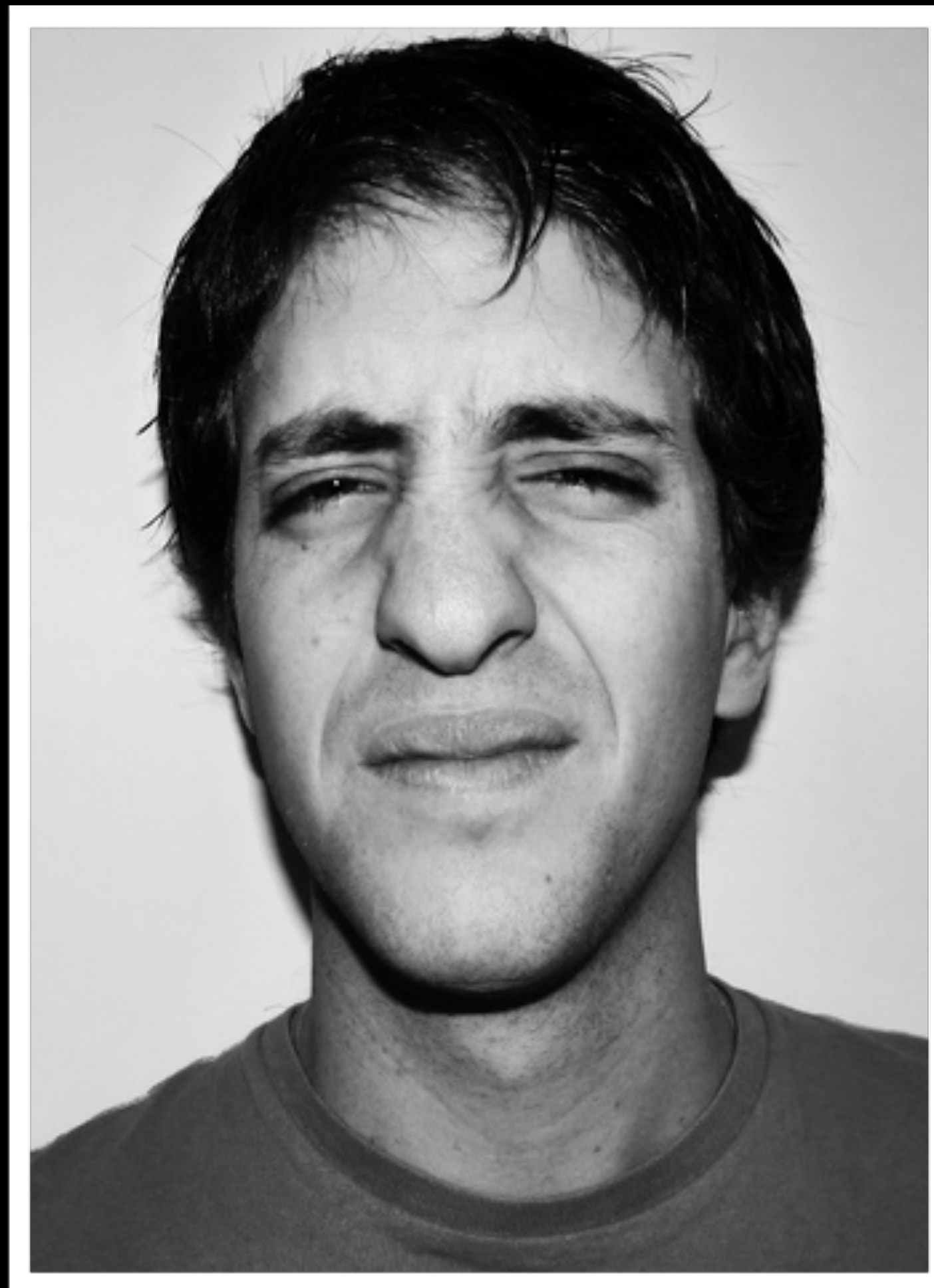
Physiology

Increased heart rate, breathing
Lacrimal glands (tears)

Function

Motivated to avoid future loss and change
circumstances
Elicits social support

Disgust



Disgust



Recurrent Evolutionary Situation

Encounter potential poison or contaminant.
Universal elicitors (feces, urine, blood, vomit, flesh)

Appraisal

This is unhealthy
This is unsafe

Behavior

Repel and distance oneself from disgust stimuli
Characteristic facial expression

Physiology

Vagus nerve stimulation (digestion)

Function

Repel substance away from body

Anger



Anger

Recurrent Evolutionary Situation

Attempt to attain a goal thwarted or stymied

Appraisal

You (or it) are in the way of what I want
I'm going to attack
You are doing something wrong

Behavior

Flight-or-**FIGHT** reaction

Physiology

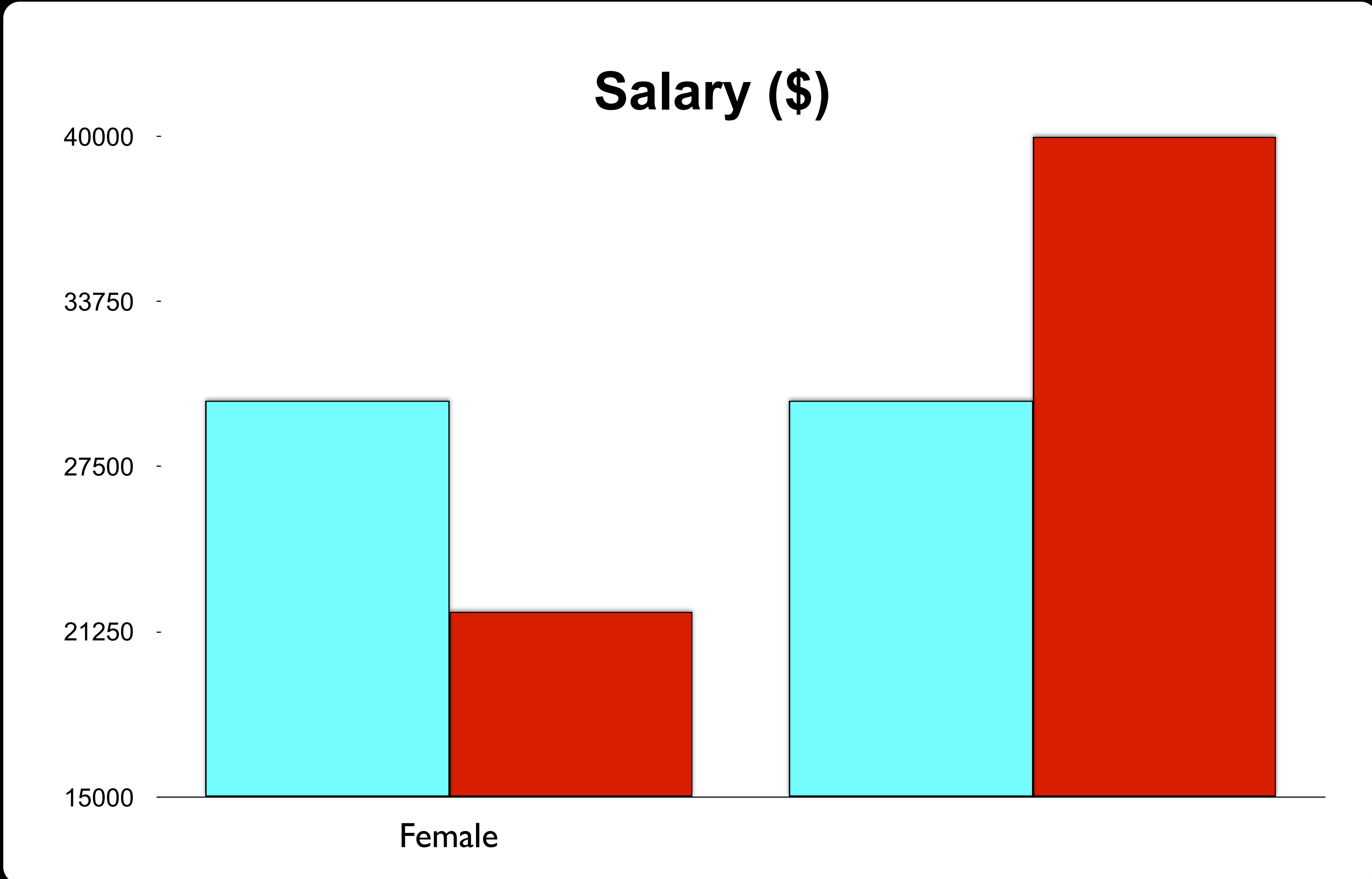
Increased blood flow to periphery,
Increased oxygen volume

Function

Confront and eliminate person/thing in way
of goal or committing wrongdoing



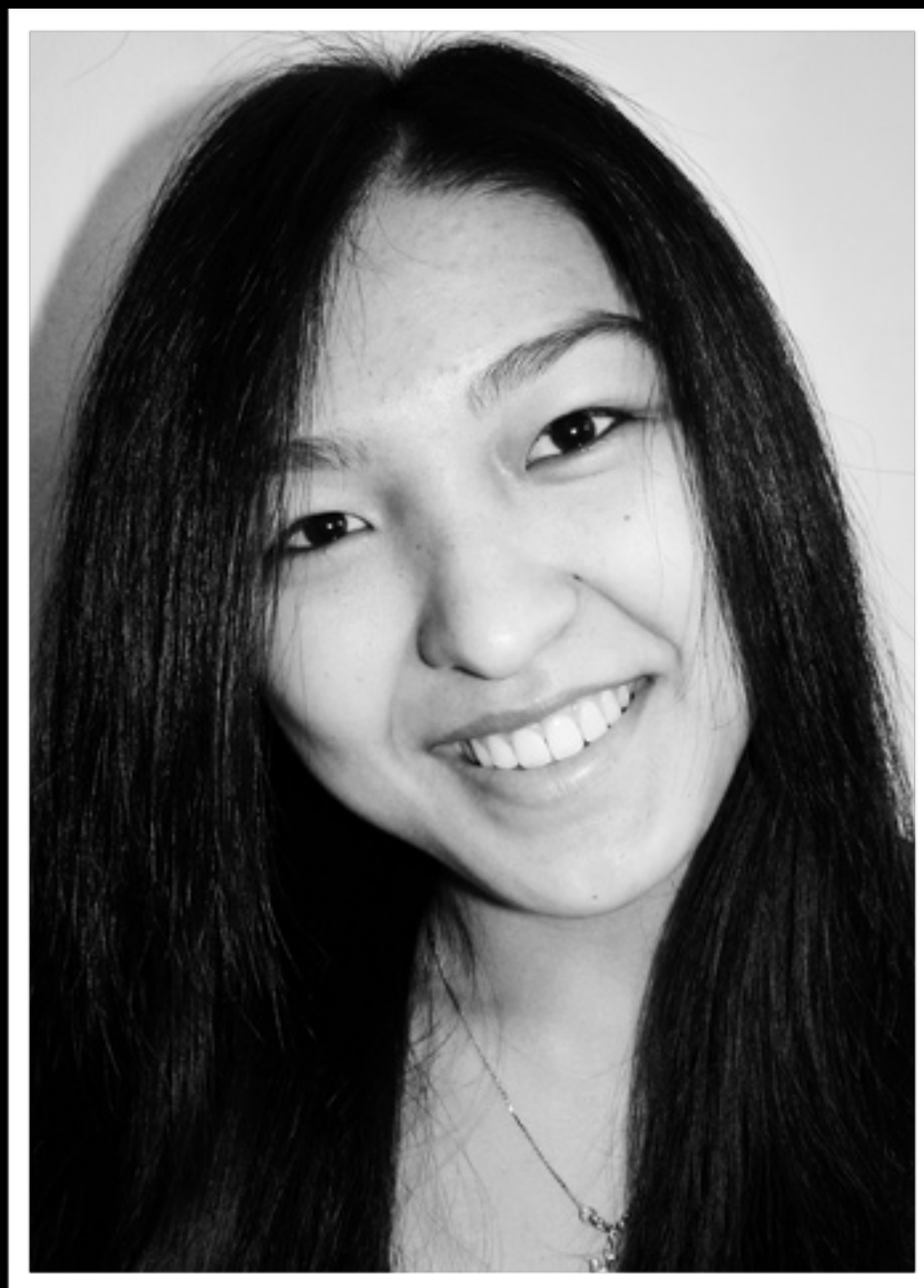
Anger Equal for All?



Sadness
Anger

Adapted from
Brescoll & Uhlmann (2008)

Happy



Happy



Recurrent Evolutionary Situation

Potential rewards and opportunities are available (e.g., food, mate, resource)

Appraisal

I like that/I want that
I'm friendly

Behavior

Incentive-seeking behavior
Affiliative orientation

Physiology

Increased physiological arousal and/or
Increased vagal tone

Function

Motivate energy to acquire and attain
potential reward, or establish relationship

Surprise



Surprise



**Recurrent
Evolutionary
Situation**

Something unexpected arises

Appraisal

What is that?
Look over there!

Behavior

Energy mobilization, attentional focus

Physiology

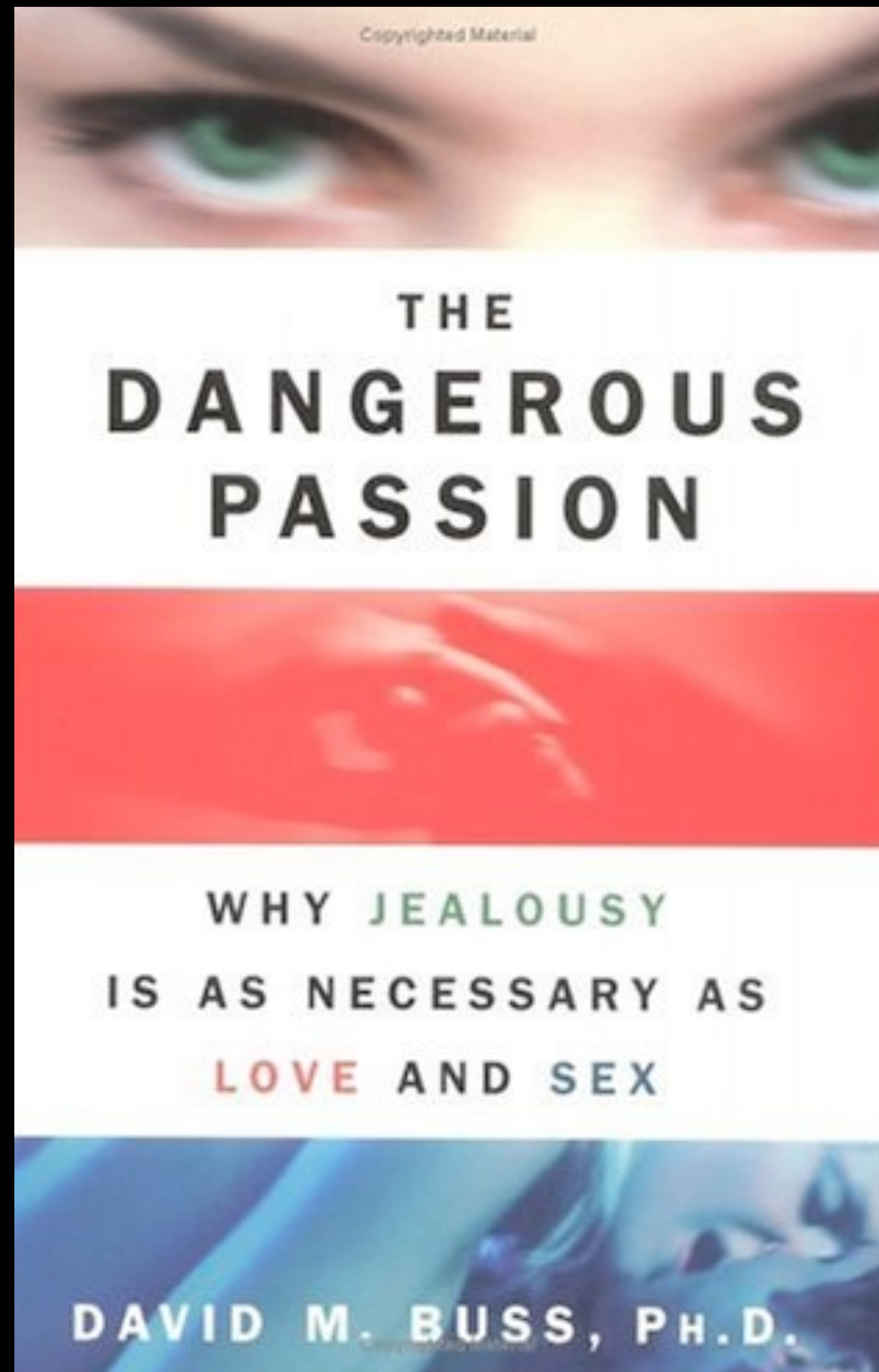
Increased blood flow to periphery,
Increased oxygen volume

Function

Evaluate change in environment, re-adapt
to new circumstance

Jealousy?





Please think of a serious committed romantic relationship that you have had in the past, that you currently have, or that you would like to have. Imagine that you discover that the person with whom you've been seriously involved became interested in someone else. What would distress or upset you more:

- A. Imagining you partner forming a deep emotional attachment to that person.**
- B. Imagining you partner enjoying passionate sexual intercourse with that other person**

Research Report

SEX DIFFERENCES IN JEALOUSY: Evolution, Physiology, and Psychology

David M. Buss, Randy J. Larsen, Drew Westen, and Jennifer Semmelroth

University of Michigan

Abstract—*In species with internal female fertilization, males risk both lowered paternity probability and investment in rival gametes if their mates have sexual contact with other males. Females of such species do not risk lowered maternity probability through partner infidelity, but they do risk the diversion of their mates' commitment and resources to rival females. Three studies tested the hypothesis that sex differences in jealousy emerged in humans as solutions to the respective adaptive problems faced by each sex. In Study 1, men and women selected which event would upset them more—a partner's sexual infidelity or emotional infidelity. Study 2 recorded physiological responses (heart rate, electrodermal response, corrugator supercilii contraction) while subjects imagined separately the two types of partner infidelity. Study 3 tested the effect of being in a committed sexual relationship on the activation of jealousy. All studies showed large sex differences, confirming hypothesized sex linkages in jealousy ac-*

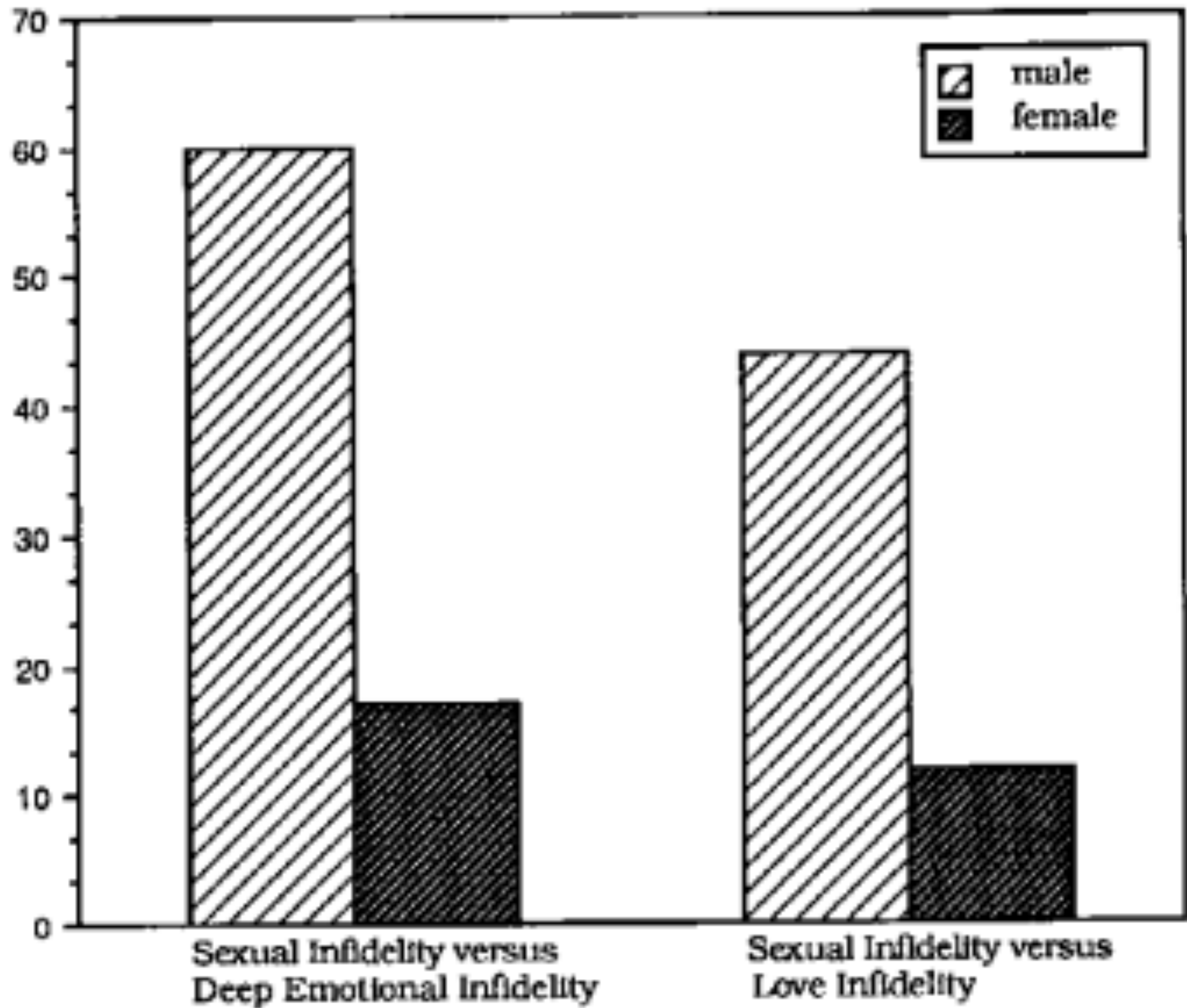
sources in putative offspring that are genetically unrelated.

These multiple and severe reproductive costs should have imposed strong selection pressure on males to defend against cuckoldry. Indeed, the literature is replete with examples of evolved anticuckoldry mechanisms in lions (Bertram, 1975), bluebirds (Power, 1975), doves (Erickson & Zenone, 1976), numerous insect species (Thornhill & Alcock, 1983), and nonhuman primates (Hrdy, 1979). Since humans arguably show more paternal investment than any other of the 200 species of primates (Alexander & Noonan, 1979), this selection pressure should have operated especially intensely on human males. Symons (1979); Daly, Wilson, and Weghorst (1982); and Wilson and Daly (in press) have hypothesized that male sexual jealousy evolved as a solution to this adaptive problem (but see Hupka, 1991, for an alternative view). Men who were indifferent to sexual contact between their mates and other men presumably ex-

mous marriage, a woman risked having her mate invest in an alternative woman with whom he was having an affair (partial loss of investment) or risked his departure for an alternative woman (large or total loss of investment). Second, in polygynous marriages, a woman was at risk of having her mate invest to a larger degree in other wives and their offspring at the expense of his investment in her and her offspring. Following Buss (1988) and Mellon (1981), we hypothesize that cues to the development of a deep emotional attachment have been reliable leading indicators to women of potential reduction or loss of their mate's investment.

Jealousy is defined as an emotional "state that is aroused by a perceived threat to a valued relationship or position and motivates behavior aimed at countering the threat. Jealousy is 'sexual' if the valued relationship is sexual" (Daly et al., 1982, p. 11; see also Salovey, 1991; White & Mullen, 1989). It is reasonable to hypothesize that jealousy in-

Percentage
Reporting
More Distress to
Sexual Infidelity





Dr. James W. Pennebaker

Professor of Psychology

&

Dr. Samuel D. Gosling

Professor of Psychology

Roadmap

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Evolutionary Approach

Evolution and Emotion

Cultural Universality

Take-Away Qs

Cultural Universality

Example 1

Emotion expressions are evident among the congenitally blind.



DR. MATSUMOTO: EMOTIONS IN CONGENITALLY BLIND

Cultural Universality

Example 2

Emotion expressions
consistent across Westernized
and non-Westernized cultures.

Paul Ekman

New Guinea Study





Paul Ekman

New Guinea Study

Goal

Examine if basic emotion expressions are culturally universal.

Method

Travel to non-Westernized tribe in New Guinea.

Part 1

Show series of 6 basic emotion expressions, choose which emotion word matches picture.

Example

See Picture



Select an emotion from the list

Anger

Sadness

Disgust

Happiness

Fear

Surprise

Example

See Picture



Select an emotion from the list

Anger

Disgust

Fear

Sadness

Happiness

Surprise

Paul Ekman

New Guinea Study

Goal

Examine if basic emotion expressions are culturally universal.

Method

Travel to non-Westernized tribe in New Guinea.

Part 1

Part 2

Show series of basic emotion expressions, pick one which is not a word that describes a story

PAUL EKMAN VIDEO: NEW GUINEA STUDY

Criticisms of New Guinea Study

1. Language Differences: Translation Problems

2. Provided Emotion Words

3. Forced-Choice Method

4. Caricature-like expressions (naturalistic?)

5. Unfamiliar task (photos) and people (white)

"If you read this book, you'll never look at other people in quite the same way again.
Emotions Revealed is a tour de force."
—Malcolm Gladwell, author of *The Tipping Point*

Emotions Revealed

Recognizing Faces and Feelings to
Improve Communication and Emotional Life



Paul Ekman

Author of TELLING LIES

Thank You!

Psychology 3131
Professor June Gruber

