Context, context, context

Why did that behavior occur?

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Millions of years back: how did the behavior evolve?

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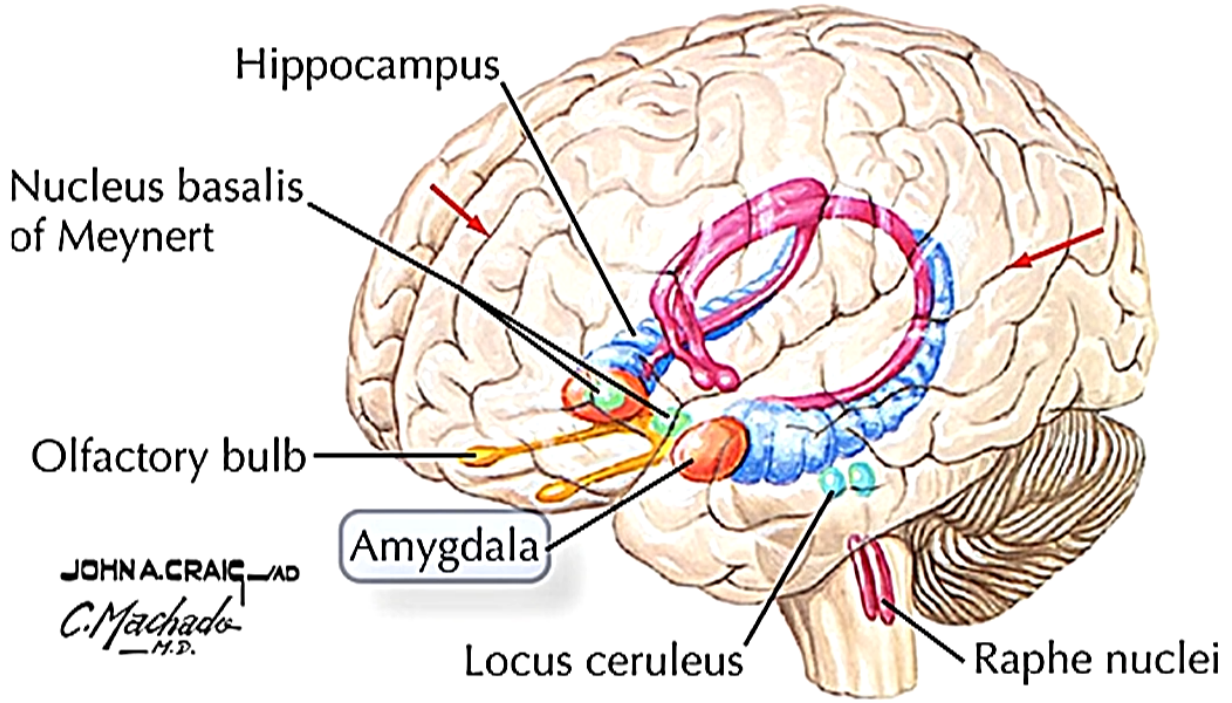
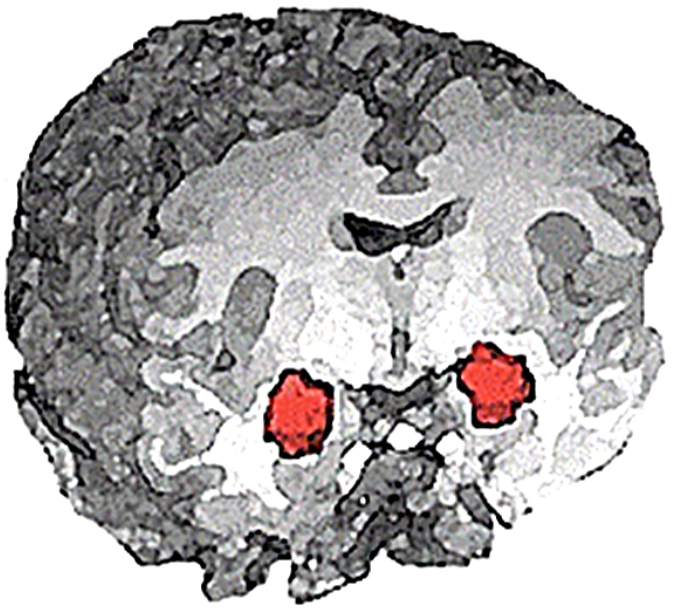
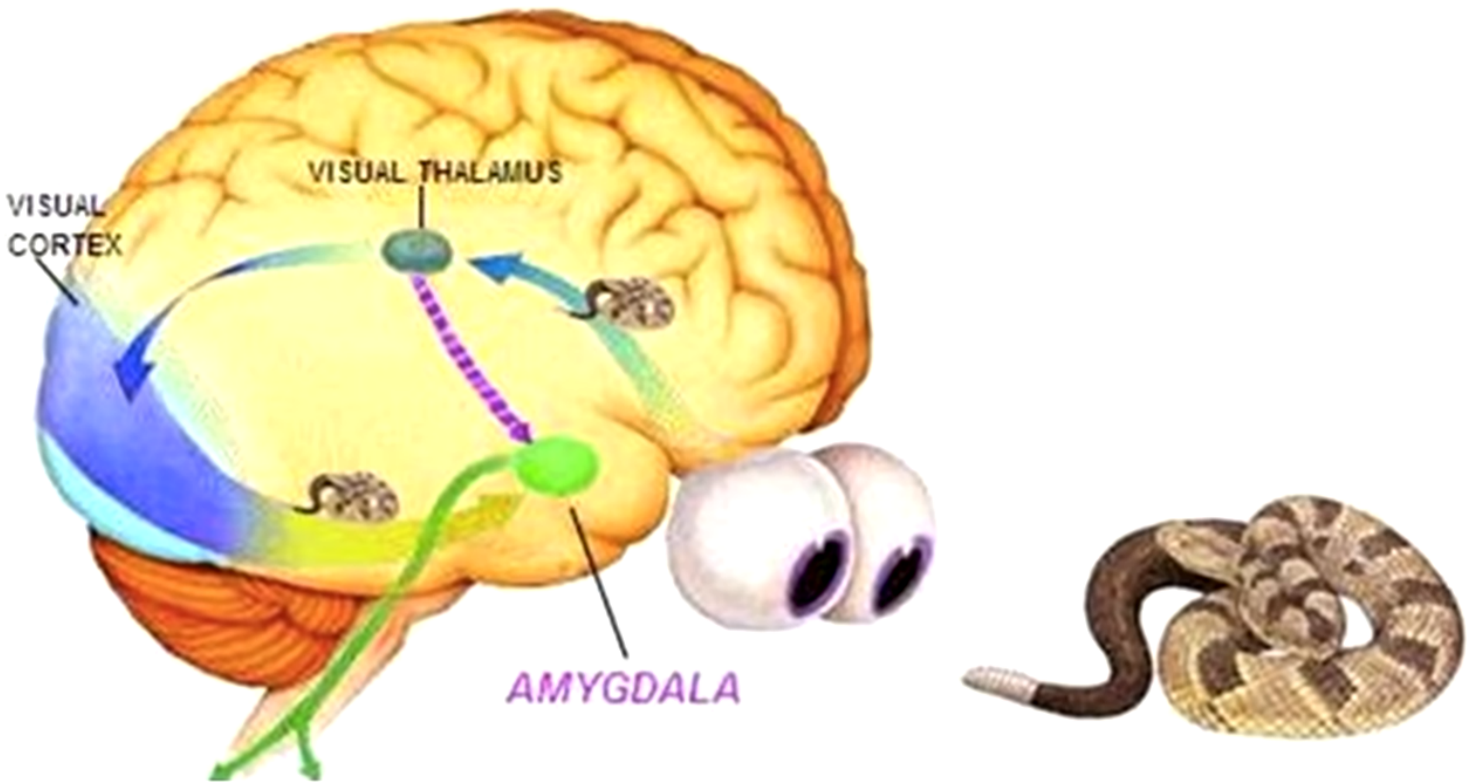
The Amygdala



NO
AMYGDALA?
NO FEAR.

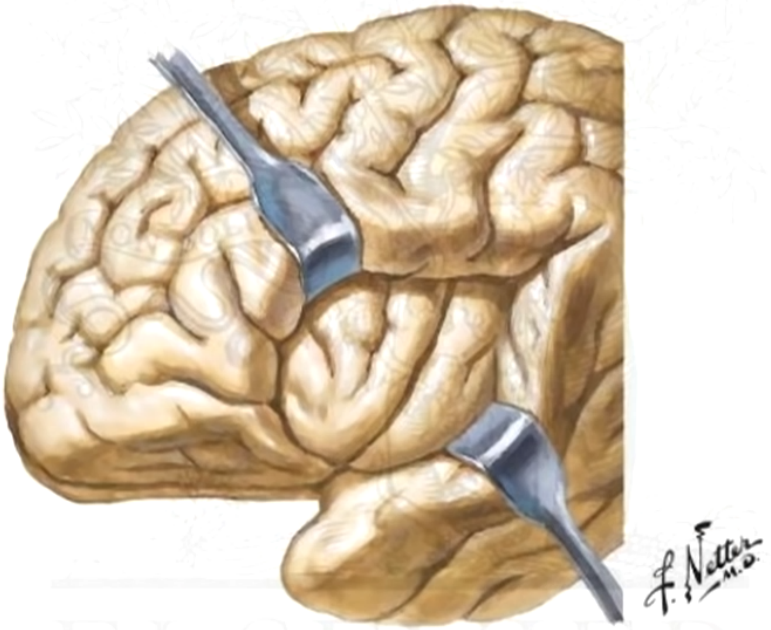



VISUAL THALAMUS
VISUAL
CORTEX
AMYGDALA

Thus:
You can't make sense of the neurobiology of aggression without considering the neurobiology of fear

The amygdala gets rapid, privileged access to sensory information…that is often inaccurate because of that speed

The Insular Cortex

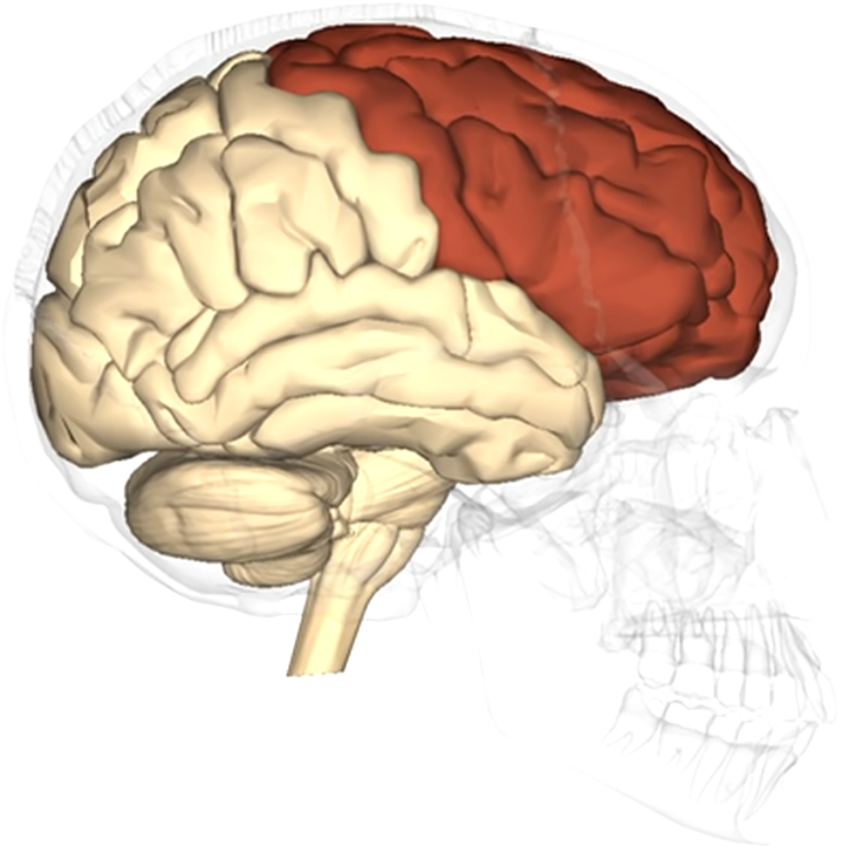


Thus:
In other animals, the insula is about
sensory disgust

In a human, it's also about moral disgust…
which is intensely context-dependent

And the insula is central to the human
tendency to consider what is merely
different to be disgustingly wrong…
and to tell the amygdala about it

The Frontal Cortex



Things that can take self-discipline:

Practicing the violin

Never ever lying

Doing an effective job at lying

Pretending to be someone else (*"To be or not to be…"*)

Manipulating the stock market

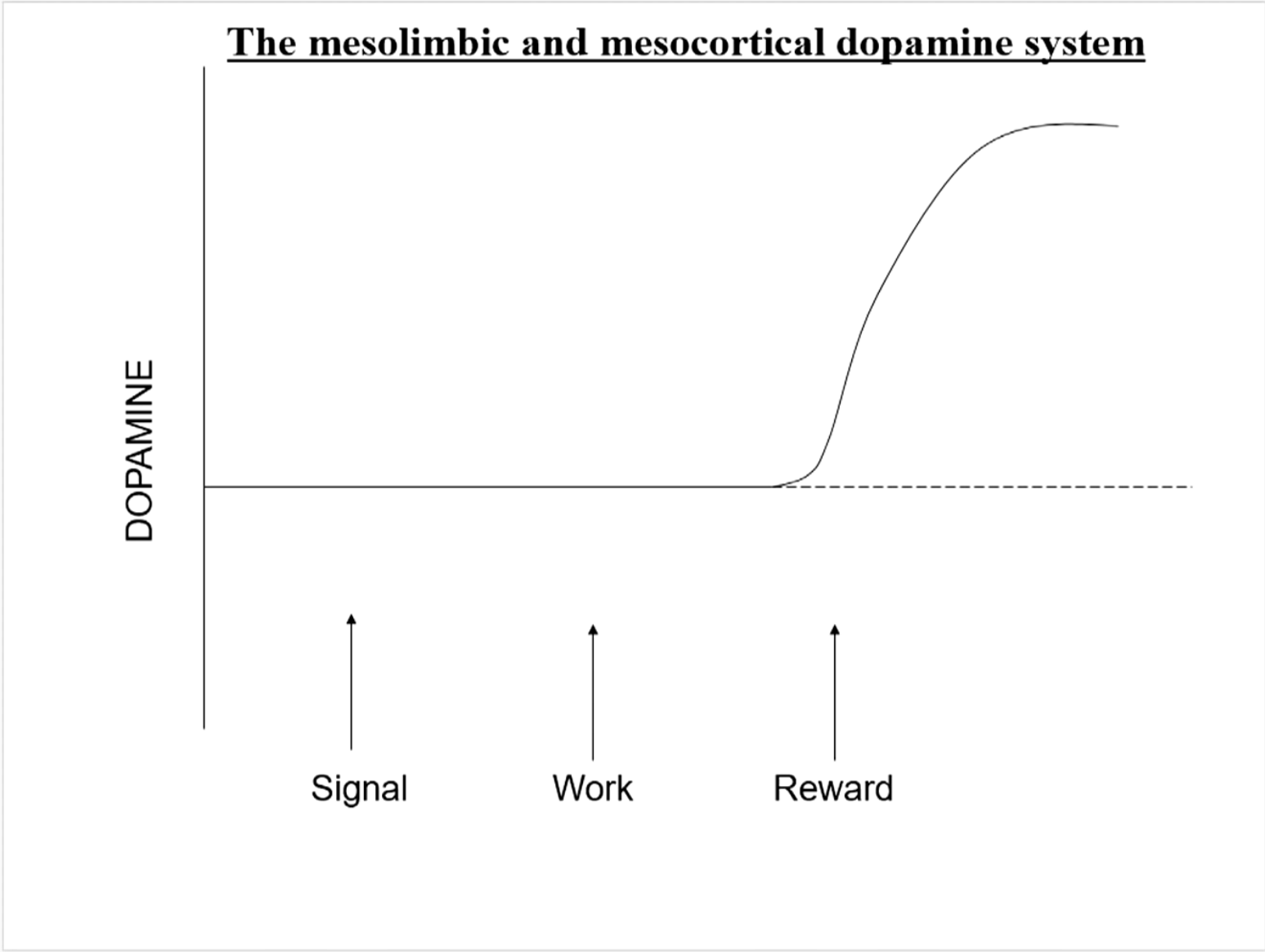
Suppressing that burp during the eulogy

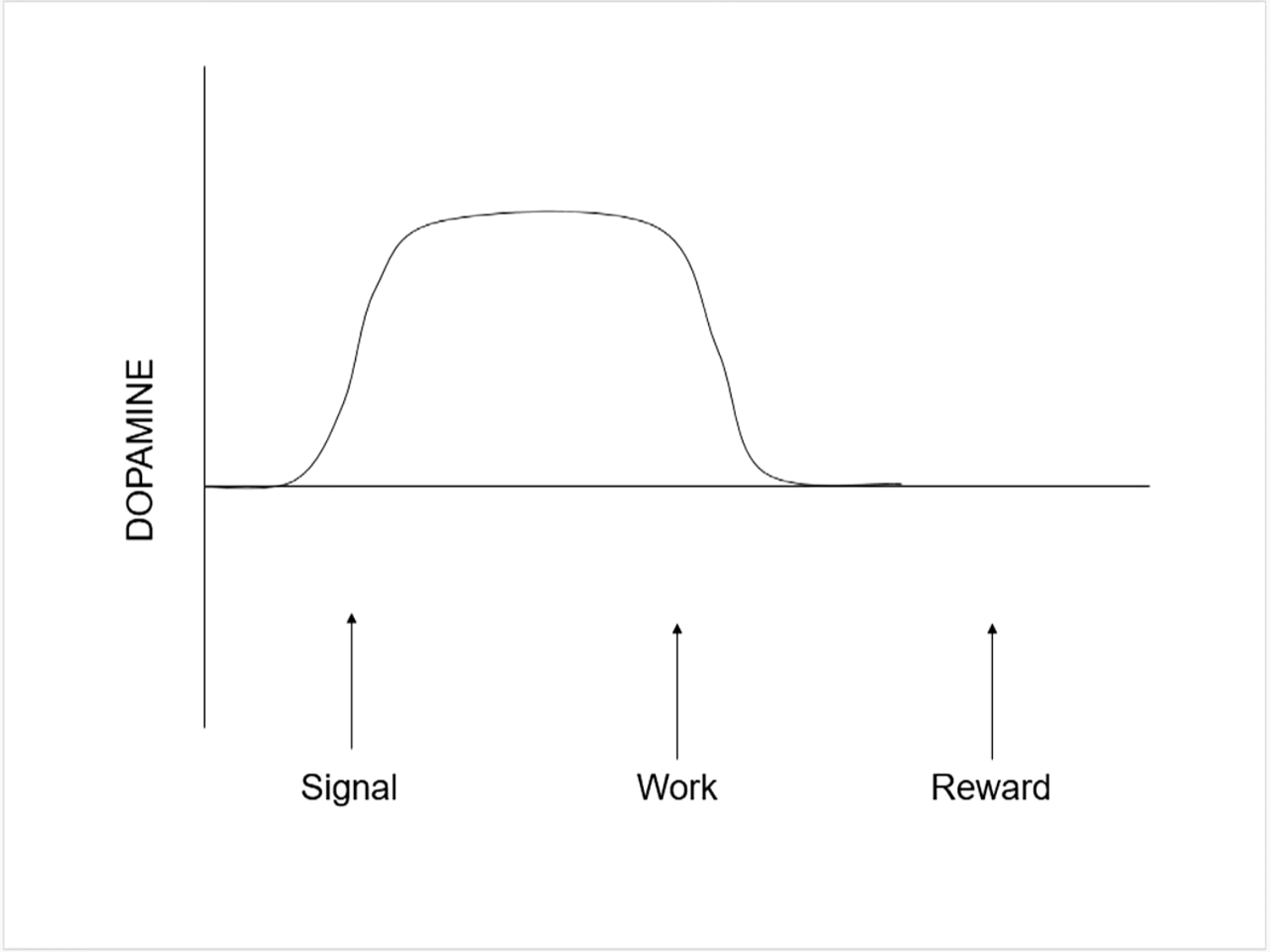
Successfully ethnically cleansing a village of civilians

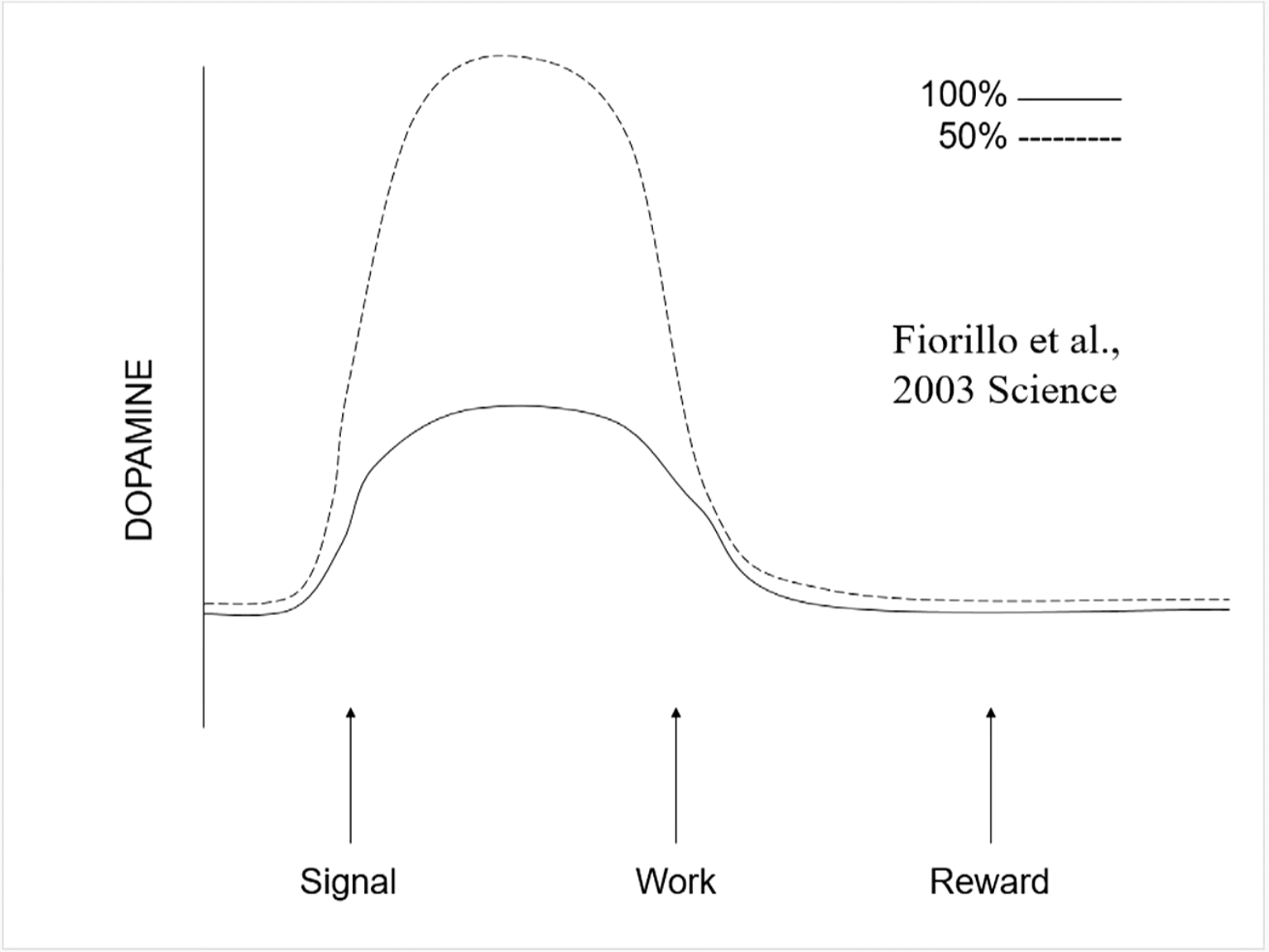
Thus:
The frontal cortex makes you do the harder thing when it's the right thing to do

But "the right thing" is value free

And the frontal cortex isn't cerebral, lofty and aloof; instead, it's constantly influenced by emotions and viscera


The mesolimbic and mesocortical dopamine system
DOPAMINE
Signal
Work
Reward


DOPAMINE
Signal
Work
Reward


100%
50%
DOPAMINE
Fiorillo et al.,
2003 Science
Signal
Work
Reward

Thus:
Dopamine is somewhat about reward…but
even more so about the anticipation of reward…
and even more so about the motivation to
get that reward

Nothing activates the system like inserting
"maybe" into the mix.

Few things activate the dopamine system more
Than the prospects of righteous punishment

Fusiform cortex: face recognition
Anterior cingulate: empathy

But whose face, and whose pain?

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Millions of years back: how did the behavior evolve?

Thus:
We are constantly buffeted and swayed by sensory information that seems irrelevant and hardly noticeable…

…as well as by sensory information that is entirely subliminal

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Thus:

Our brain and sensory systems are constantly marinating in hormones

The problem isn't testosterone's effects on aggression; it's that we often reward aggression so abundantly

Oxytocin promotes being pro-social only to in-group members; if it's a Them, oxytocin does the opposite