

University of Jyväskylä, Finland 25th January 2011

Antonio Damasio  
**SELF COMES TO MIND**  
Constructing the Conscious Brain (2010)

An introduction by  
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# Central idea

The BODY is a foundation of  
THE CONSCIOUS MIND

How can we observe consciousness?

Three Perspectives:

Personal introspection  
Observing external behaviors  
Studying brain functions

The MIND can be conscious of

PAST & FUTURE

OBJECTS & EVENTS

BODY STATES

with degrees of

pain ←————→ pleasure

What is Mind?

MIND is

A mental stream of organized images

IMAGES are created by MAPPING  
The brain maps

The world  
The body  
And its own doings

MAPS are momentary patterns  
which can be experienced as  
IMAGES in the MIND

# IMAGES

may have any kind of sense origin:

|         |          |
|---------|----------|
| visual  | auditory |
| tactile | visceral |
| smell   | taste    |

CONSCIOUS MIND = MIND + SELF

The MIND is a process:  
a flowing mix of images

The SELF is the KNOWER:  
The OWNER of the MIND

The SELF is also a process

The SELF is present  
whenever we are CONSCIOUS:  
The process of KNOWING

SELF adds subjectivity to the MIND

Central idea

**FEELING**

pervades the images  
we perceive subjectively

The SELF is always felt

Three levels of SELF:

AUTOBIOGRAPHICAL SELF

CORE SELF

PROTOSELF

AUTOBIOGRAPHICAL SELF

is

The feeling of knowing

that I am ME

and I have a MEMORY

I know that I have a past and a future  
and social and cultural relations

CORE SELF

is

The feeling of knowing what happens

My organism has RELATIONSHIPS  
to OBJECTS and EVENTS

and I can ACT upon them

PROTOSELF

is

The feeling of knowing  
that my body exists

This is a PRIMORDIAL FEELING  
which has a valence:

a degree of

pain ←————→ pleasure

Which living beings may possess  
an autobiographical self?

Probably

Humans, apes

Marine mammals

Elephants

Wolves, dogs, cats

# Music

Boccherini

Cello Concerto in Bb Major (Adagio)

Listening suggestions:

Feelings evoked in your body?

Movements and events in the music?

Your personal knowledge, memories,  
opinions, preferences?

Central idea

**FEELINGS and EMOTIONS**  
are distinguishable processes

## EMOTIONS

are complex, largely automated programs  
of **ACTIONS** carried out in the body

## FEELINGS

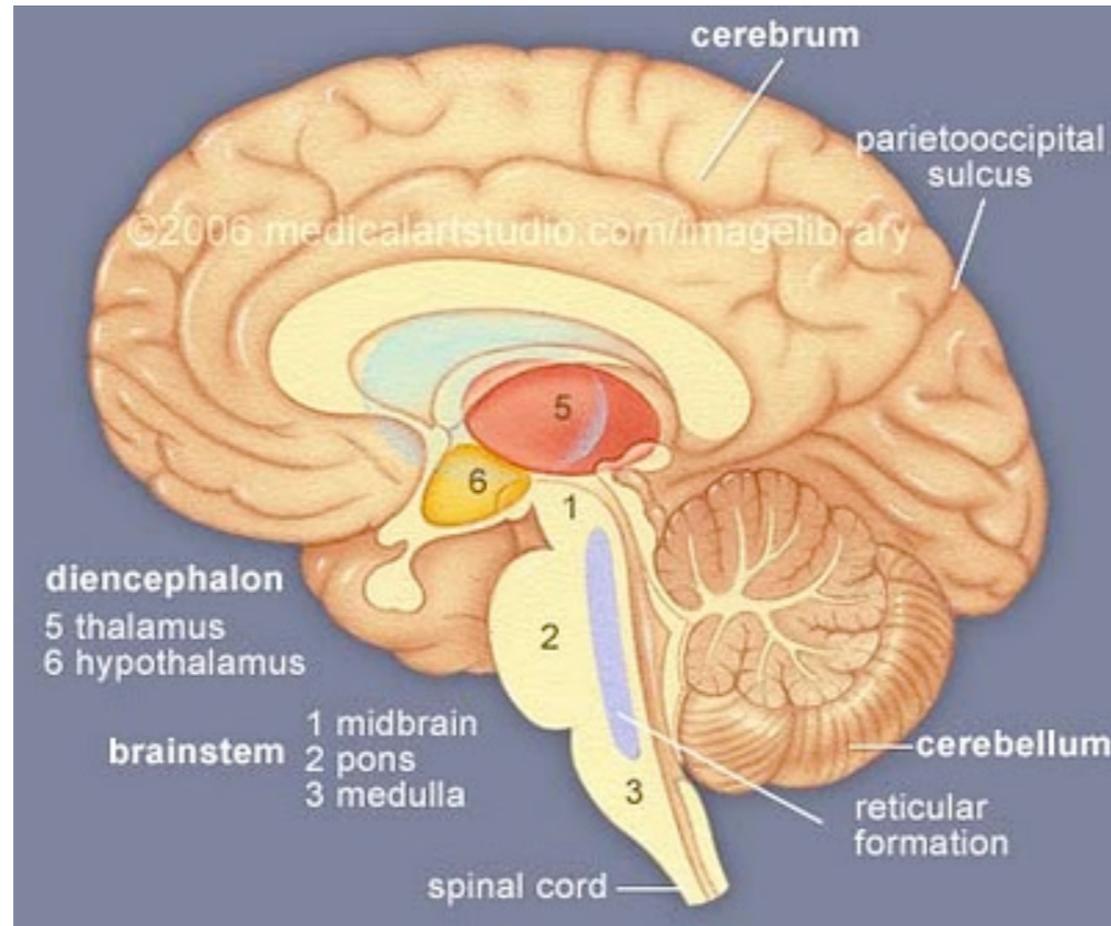
are images of **EMOTIONS**:  
**PERCEPTIONS** executed in brain maps

## Central idea

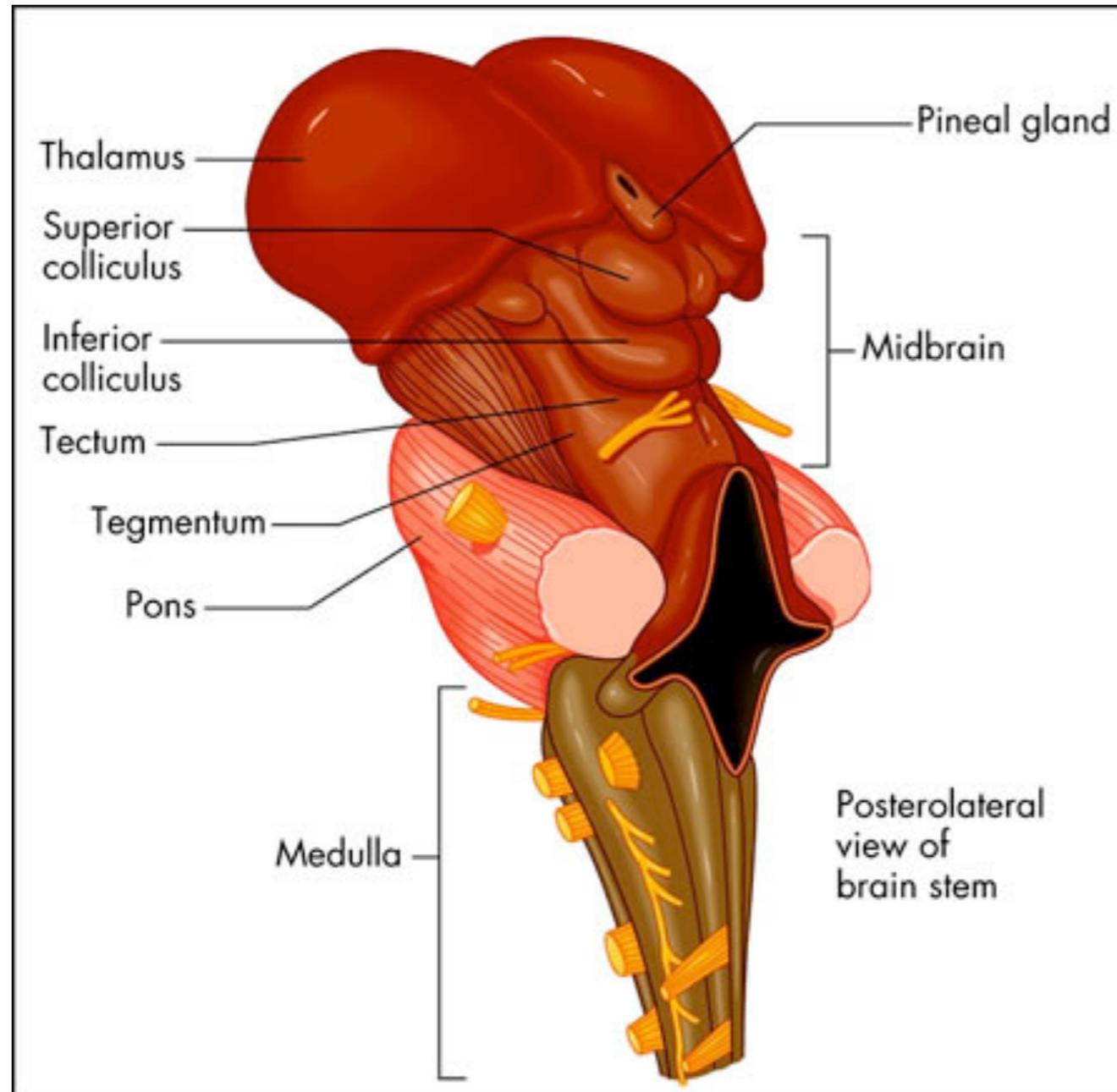
All feelings of emotions  
are complex variations on  
**PRIMORDIAL FEELINGS**

Body and brain bond  
in a perpetual resonant loop

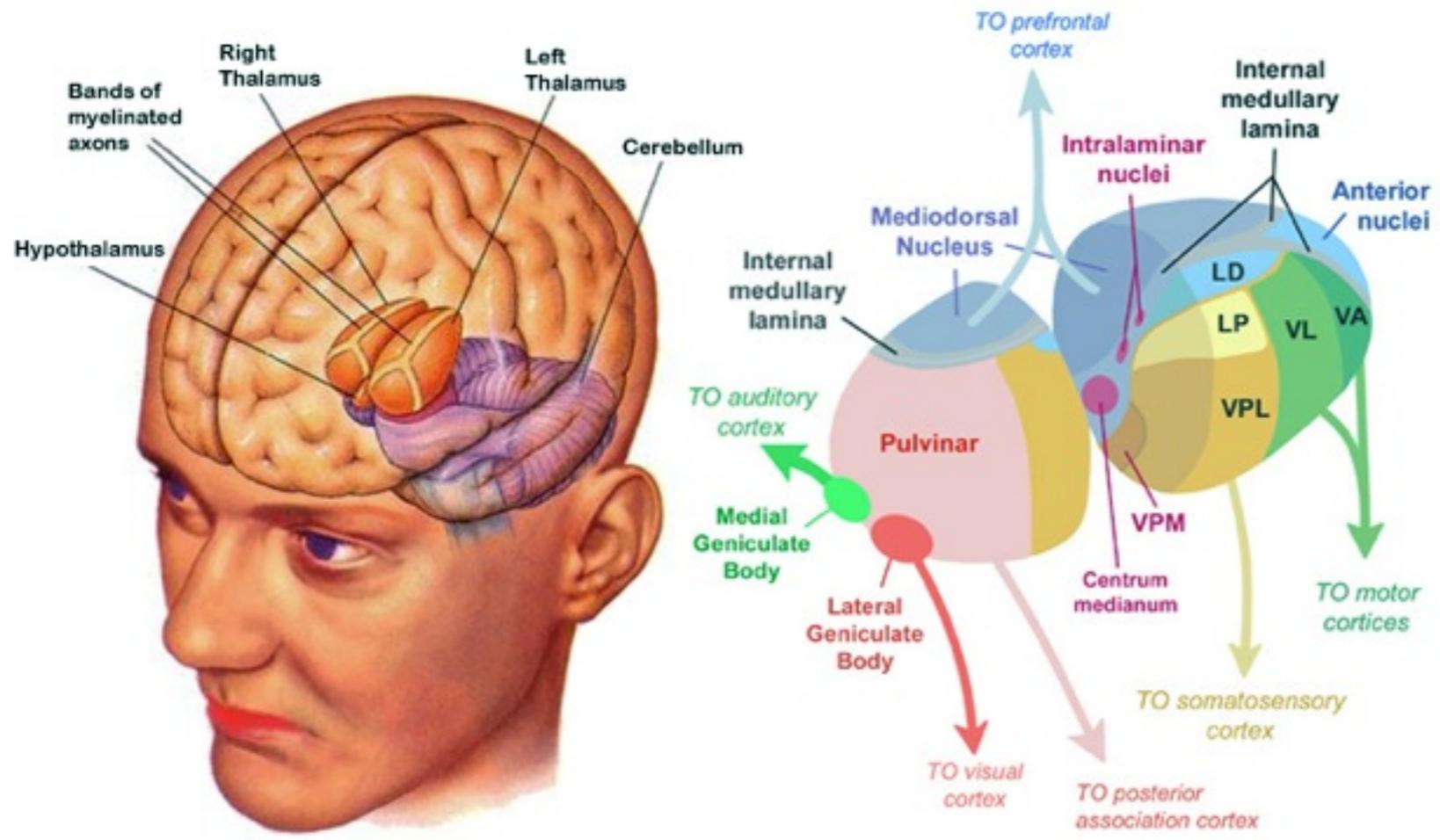
# Brain regions of interest: Brain stem - Thalamus - Cortex



# Brain stem and Thalamus



# Thalamus connections



Key structures in charge of implementing  
**CONSCIOUSNESS:**

Widespread Regions of CORTEX

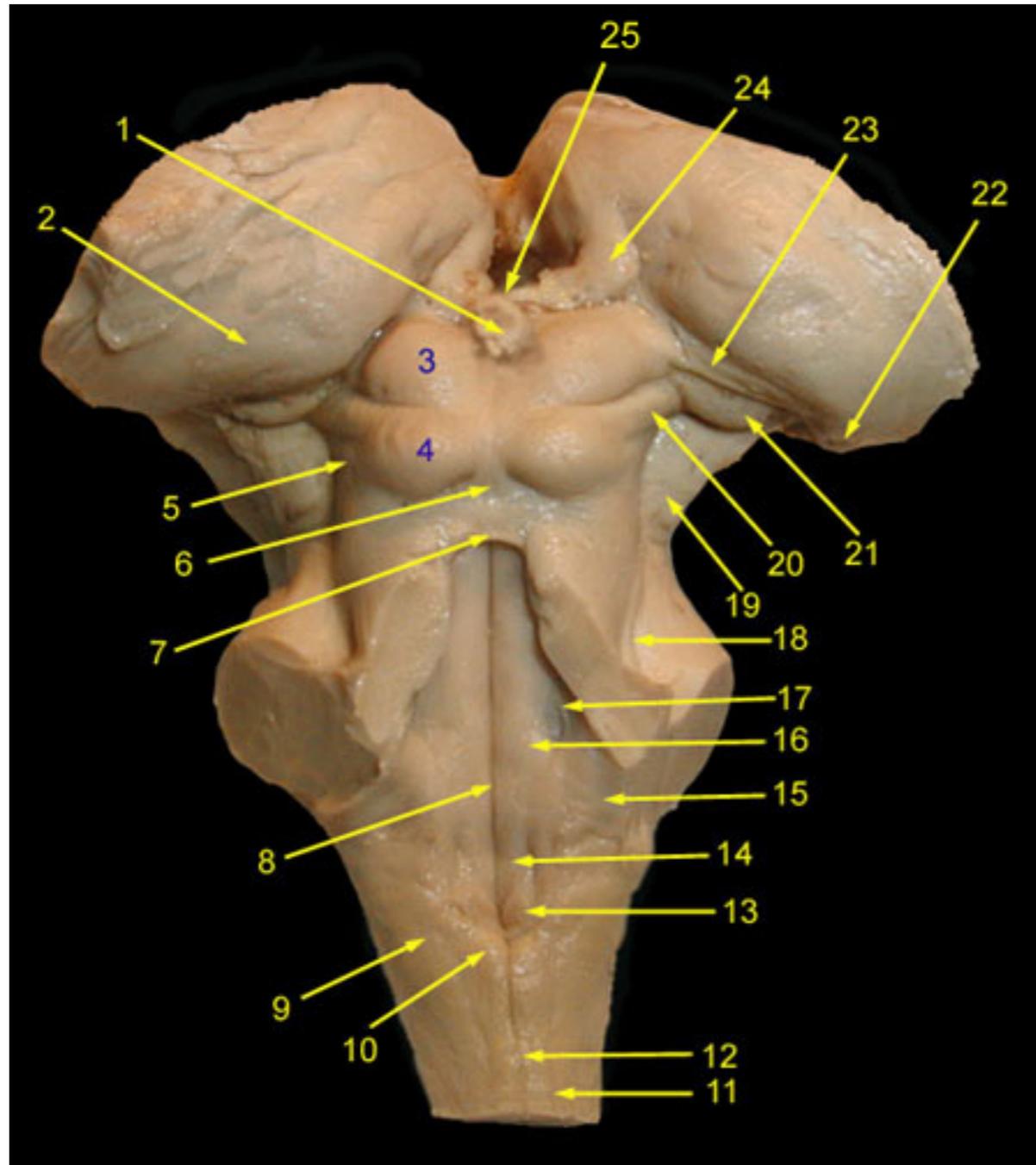
THALAMIC NUCLEI

UPPER BRAIN STEM

## Central idea

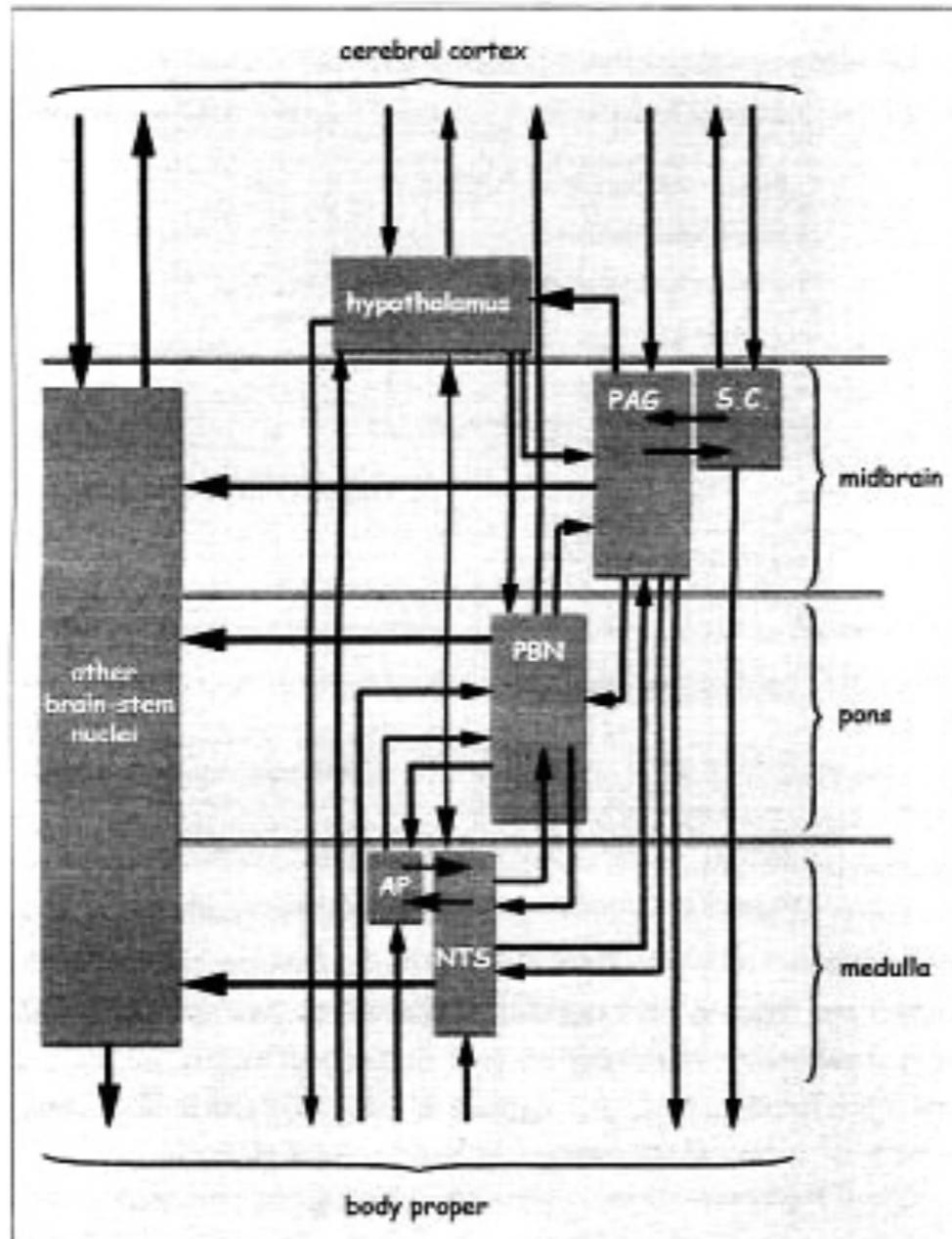
The **BRAIN STEM** controls basic life functions and is a critical contributor to **CONSCIOUSNESS**

Early **FEELINGS** generated by ongoing life events are primordial constituents of **MIND** and indispensable components of the **SELF**



1. Pineal gland
2. Thalamus ( Pulvinar )
3. Superior colliculus
4. Inferior colliculus
5. Lemniscal trigone
6. Frenulum veli
7. Superior medullary velum
8. Median sulcus
9. Gracile tubercle
10. Cuneate tubercle
11. Posterior intermediate sulcus
12. Posteromedian sulcus
13. Vagal trigone
14. Hypoglossal trigone
15. Striae medullares
16. Facial colliculus
17. Locus coeruleus
18. Parabrachial recess
19. Crus cerebri
20. Inferior collicular brachium
21. Medial geniculate body
22. Lateral geniculate body
23. Superior collicular brachium
24. Habenula
25. Habenular commissure

# Schematic illustration of brainstem nuclei and connections



(Thalamus is not shown)

Hypothalamus

SC: Superior colliculus

PAG: Periaqueductal Grey

PBN: Parabrachial Nucleus

NTS: Nucleus Tractus Solitarius

AP: Area Postrema

Other brain stem nuclei  
(regulate wakefulness and release  
neurotransmitters to cortex)

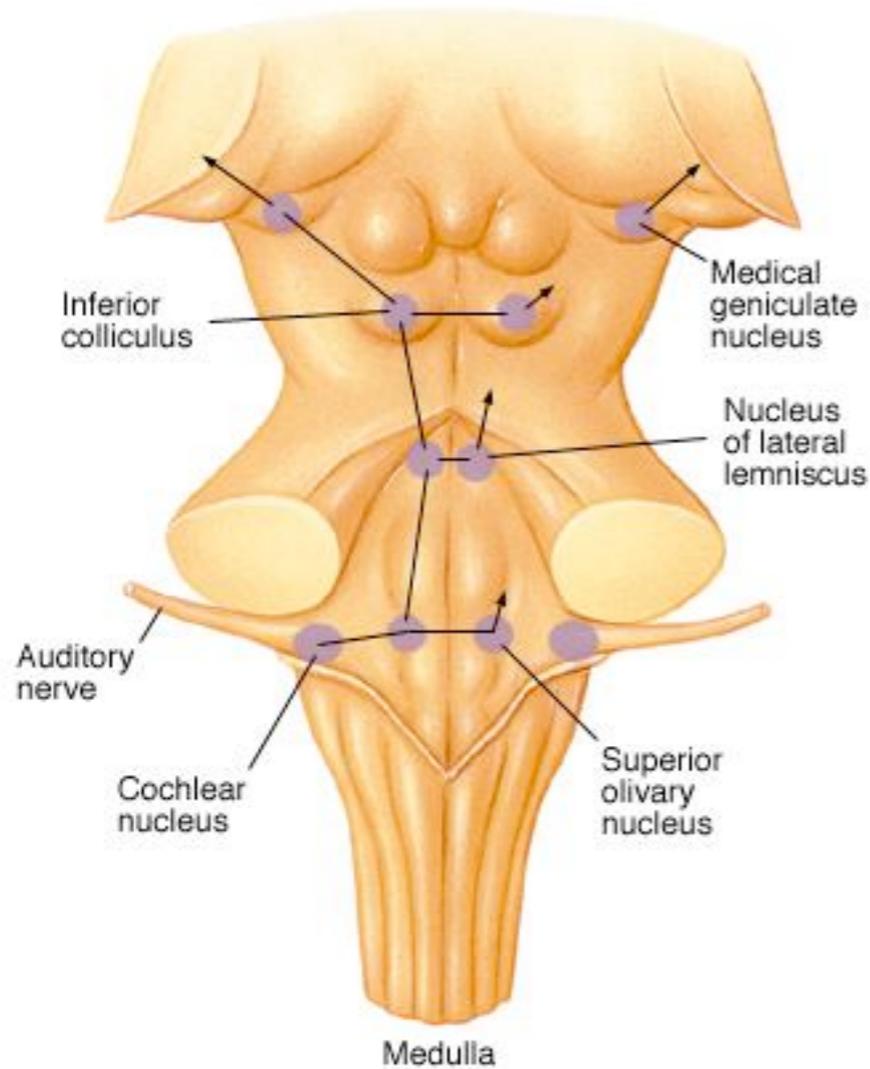
The BRAIN STEM  
processes information needed to  
represent the body and control its life

The THALAMUS  
disseminates signals from the BRAIN STEM  
to a widespread territory of the CORTEX

What about MUSIC?

Auditory information  
is processed in five brain stem nuclei  
before arriving at the cortex

# The auditory pathway



Cortex

Medial Geniculate Nucleus  
Inferior Colliculus

Nucleus of Lateral Lemniscus

Superior Olivary Nucleus  
Cochlear Nucleus

... plus one

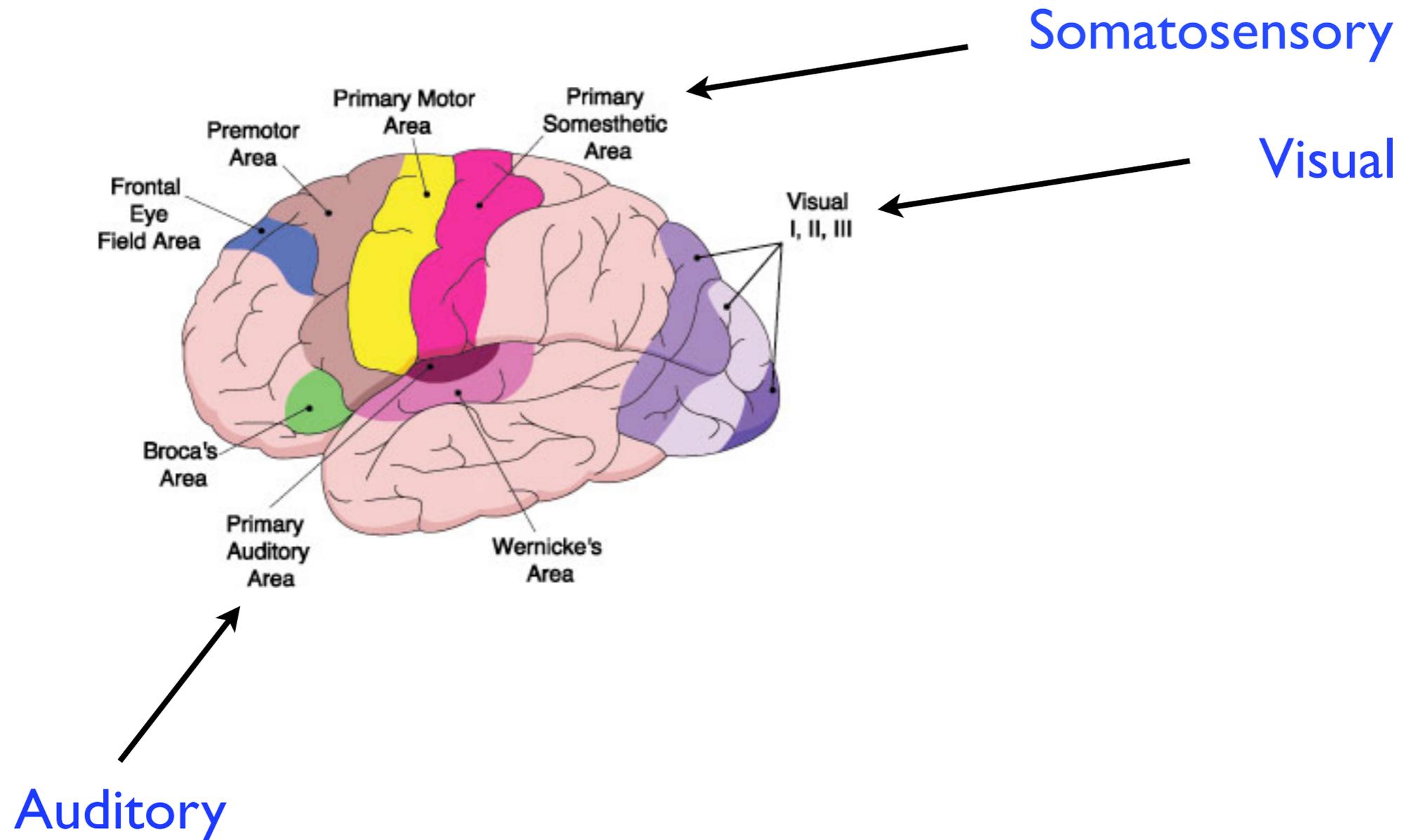


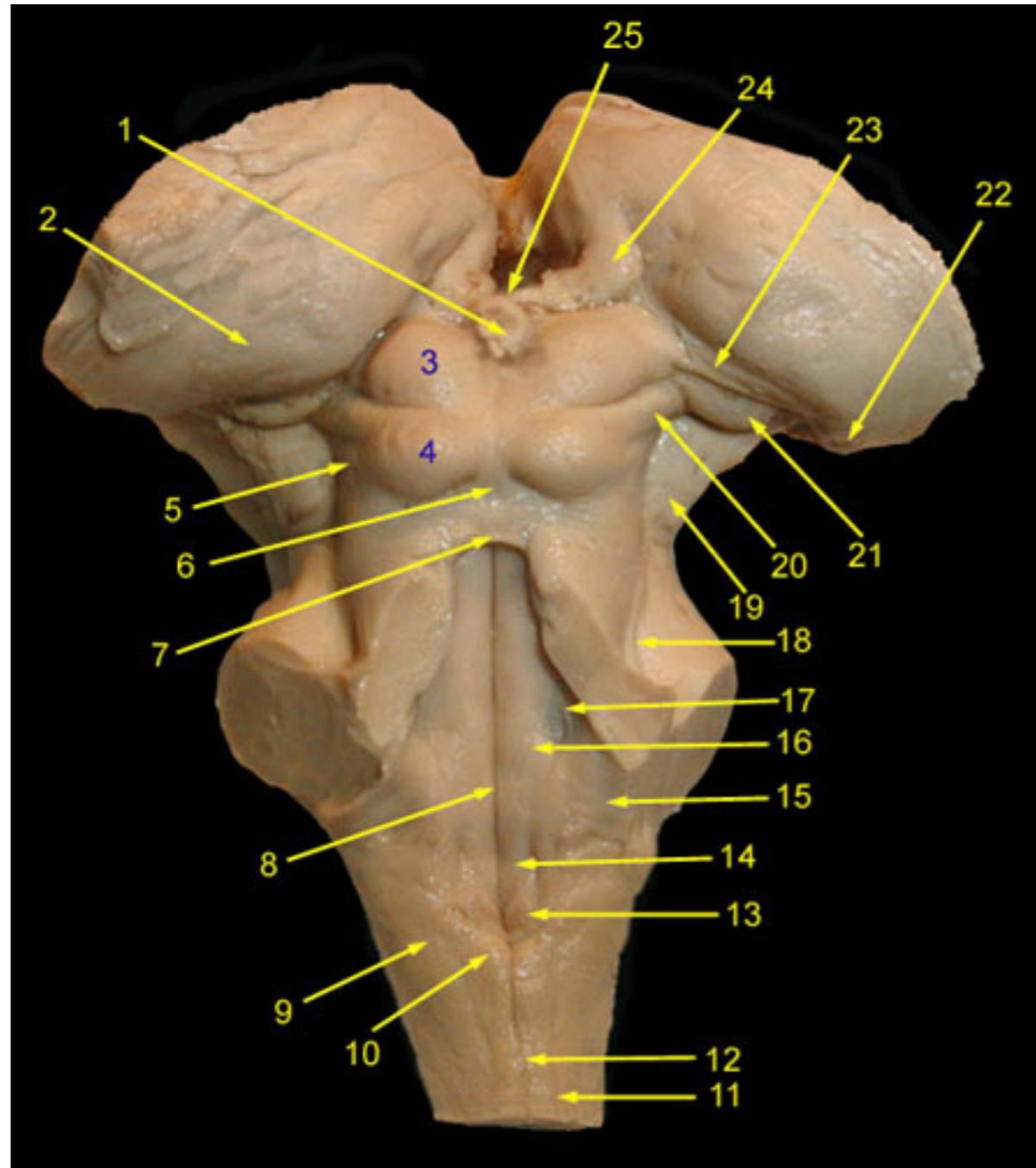
**THE SUPERIOR COLLICULUS**  
permits integration  
of visual, auditory and somatic information

before this information is forwarded  
to the **EARLY SENSORY CORTICES** for  
vision, hearing and somatic sensation  
which produce images in the mind

Processing of pleasant or unpleasant visual stimuli  
may take 500 milliseconds  
before a feeling is reported by the conscious mind

# Some brain areas including early sensory cortices





(3) The SUPERIOR COLLICULUS has seven layers. The deep layers contain superposed maps of visual, auditory and somatic information

(4) The INFERIOR COLLICULUS is an important way station for auditory signals on the way to the cortex

My suggestions:

## MUSIC

has an immediate and direct impact  
on vital body functions  
due to the connections of nuclei  
in the brain stem

## MUSIC

is immediately integrated  
with vision and body sensations  
due to the connections  
in the superior colliculus

[http://vbn.aau.dk/en/persons/erik-christensen\(42f961df-45ff-4150-99ea-139d0a57a674\).html](http://vbn.aau.dk/en/persons/erik-christensen(42f961df-45ff-4150-99ea-139d0a57a674).html)

# DAMASIO'S APPROACH

is not to propose  
a definitive theory of consciousness

but to articulate a number of hypotheses  
which constitute a FRAMEWORK  
for the explanation of MIND and SELF  
and the structures of the  
CONSCIOUS BRAIN

Thank you ... and happy new ears!

