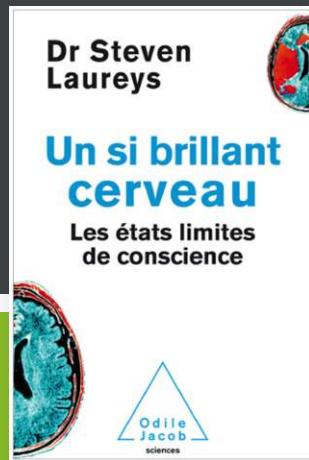




Médecine, science, éthique & loi de la conscience & de l'âme

Steven Laureys



9/03/16
Verviers



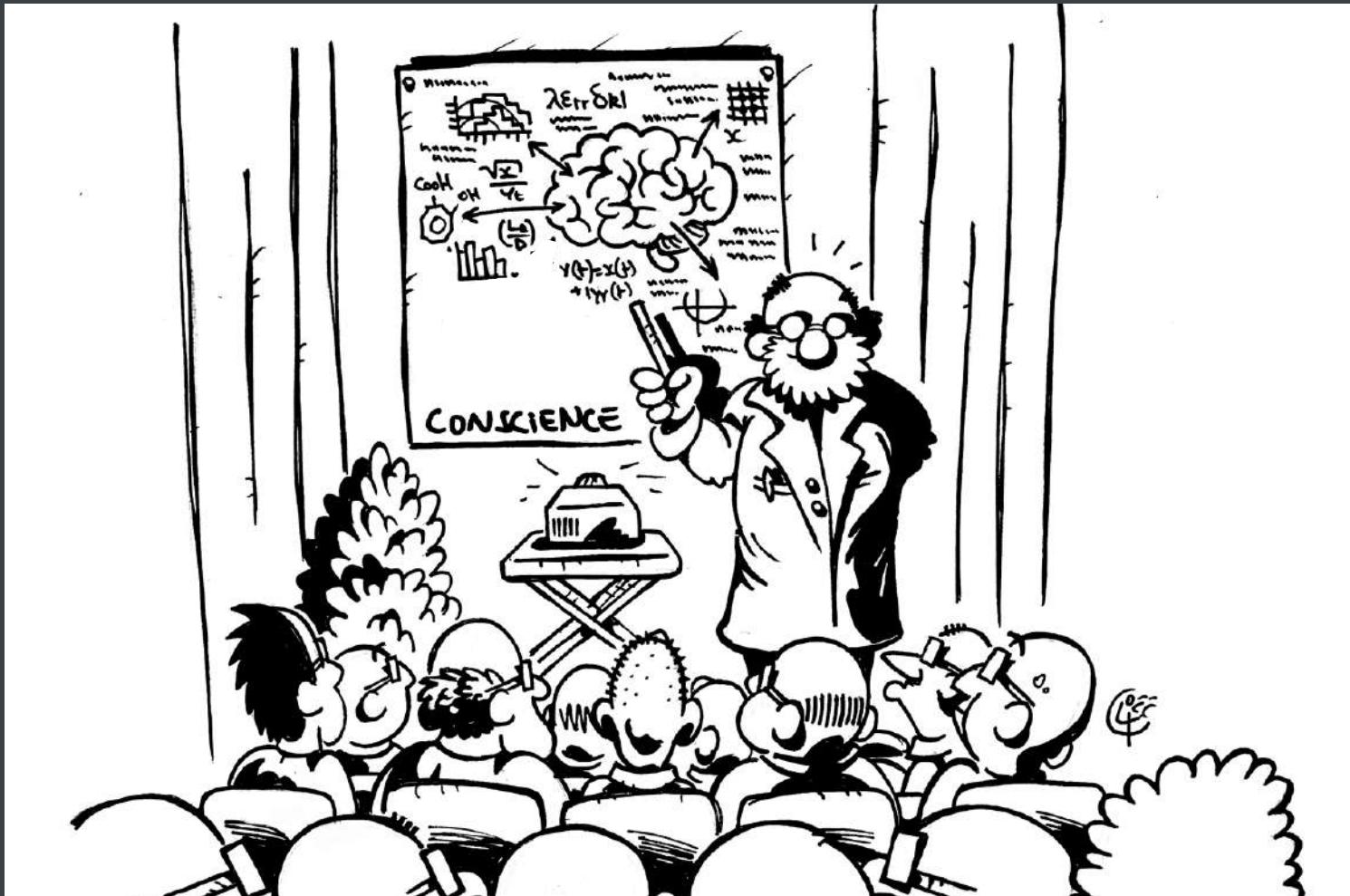


GIGA – Consciousness

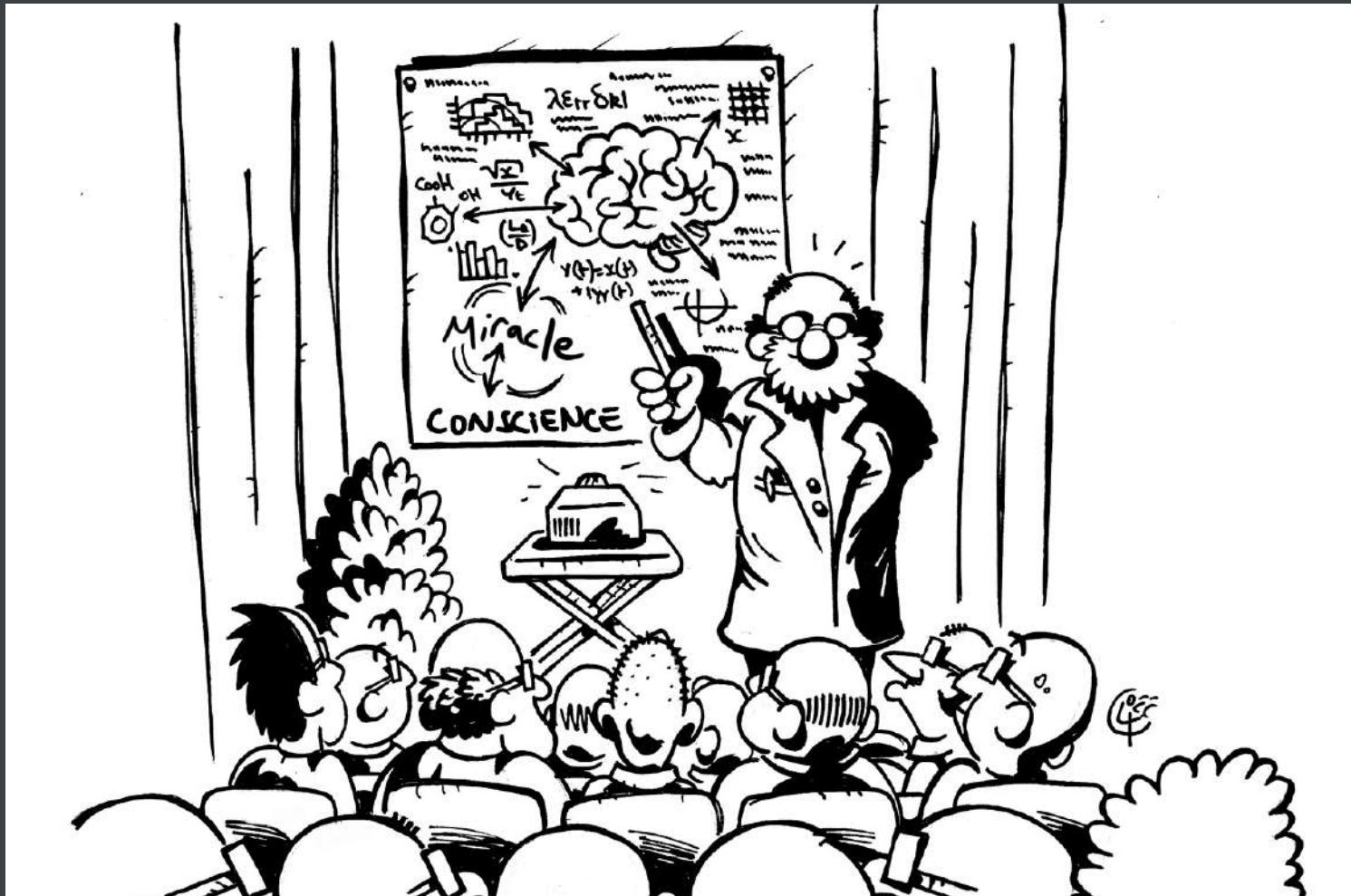


- 1997 CRC; 2007 Coma Science Group; 2015 integration GIGA
- OTPs transferred from CRC; Full team left offices of CRC
- Translational research ULg platform at CHU
- GIGA : big, well organized, transparent & democratic
- SL is accepted as special extra-member ‘bureau’
(permission to be confirmed or not on annual basis)
- Promote Consciousness as research theme; “Liège School”
- Win-win synergy ULg-CHU
 - Hypnosis (A Vanhaudenhuyse H32; 100% research CHU-CIO)
 - Anesthesia (V Bonhomme H20; CHU-Pharm I)
 - Intensive Care (D Ledoux H25; 50% CHU, 50% SPF GIFT)
 - Disorders of consciousness (S Laureys H67, A Soddu H23)

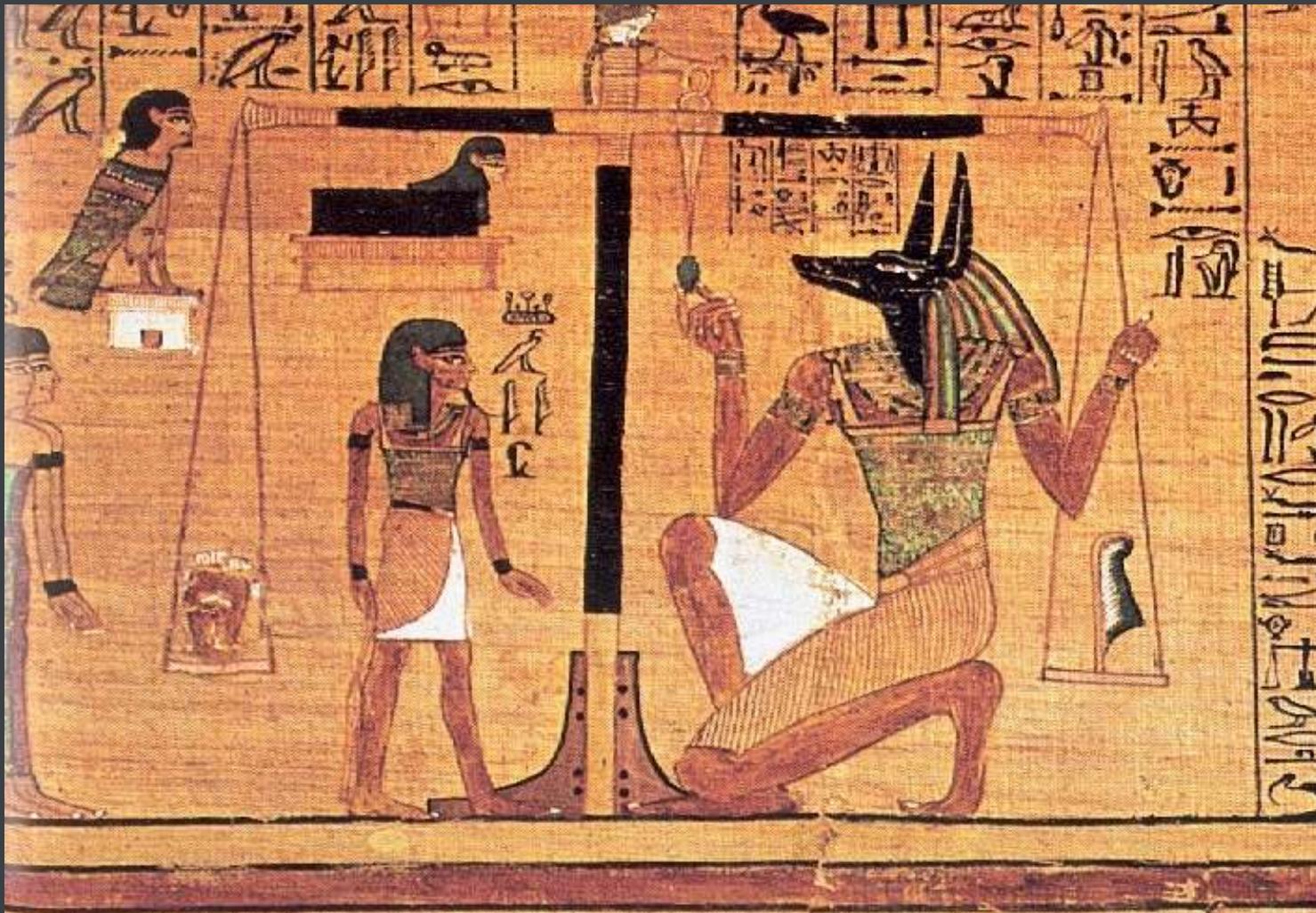
Comment la science peut-elle expliquer la conscience ?



Comment la science peut-elle expliquer la conscience ?



Comment la science peut-elle expliquer la conscience ?

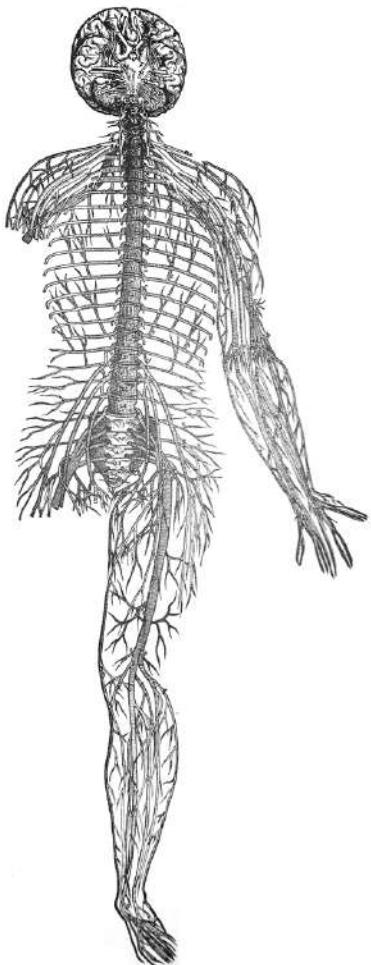


Livre des morts, 1200 AC



Comment la science peut-elle expliquer la conscience ?

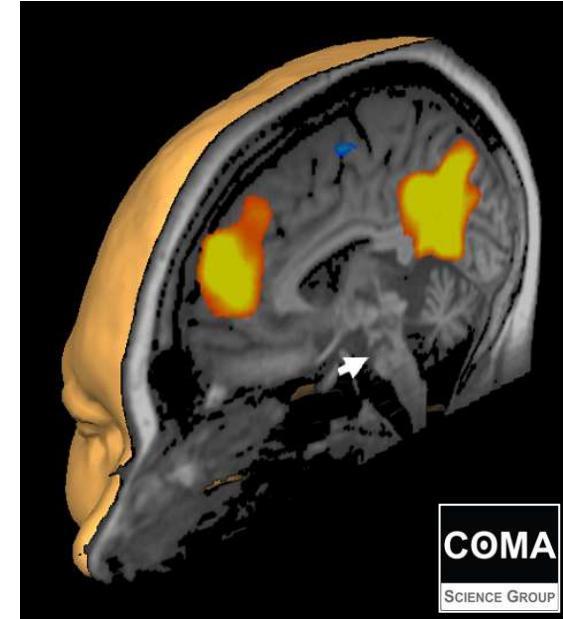
Vésale, 1565



Ramón y Cajal, 1899

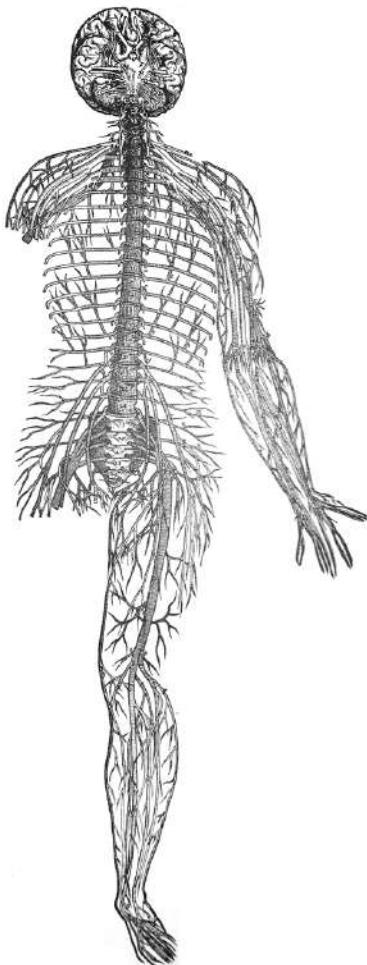


2015

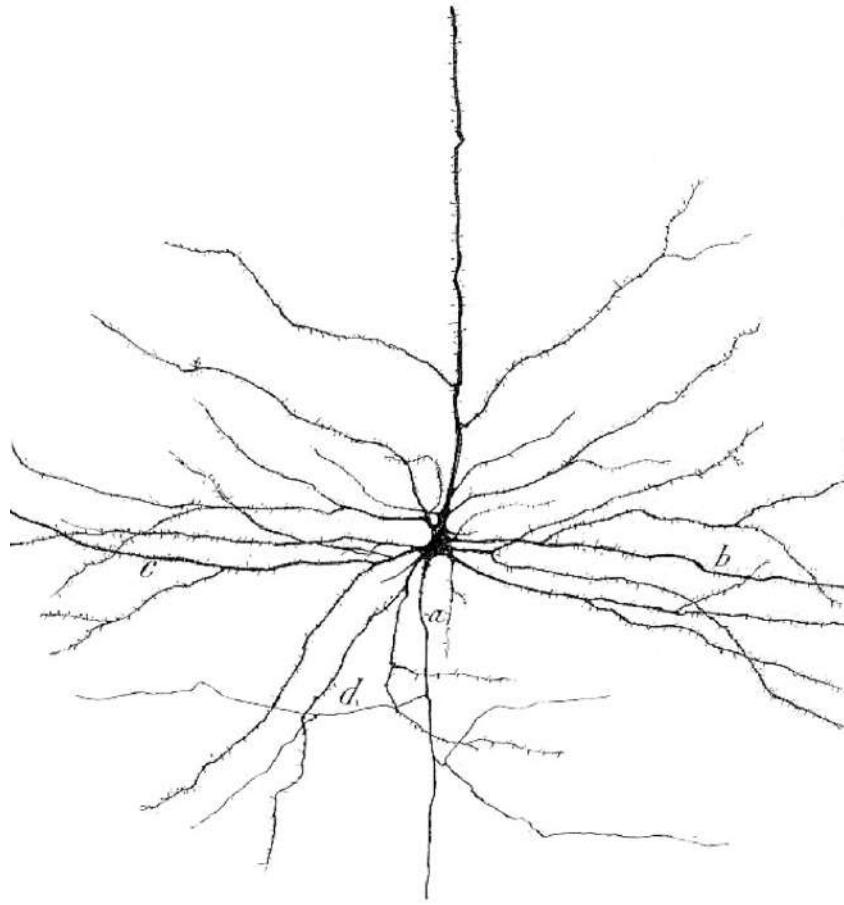


Comment la science peut-elle expliquer la conscience ?

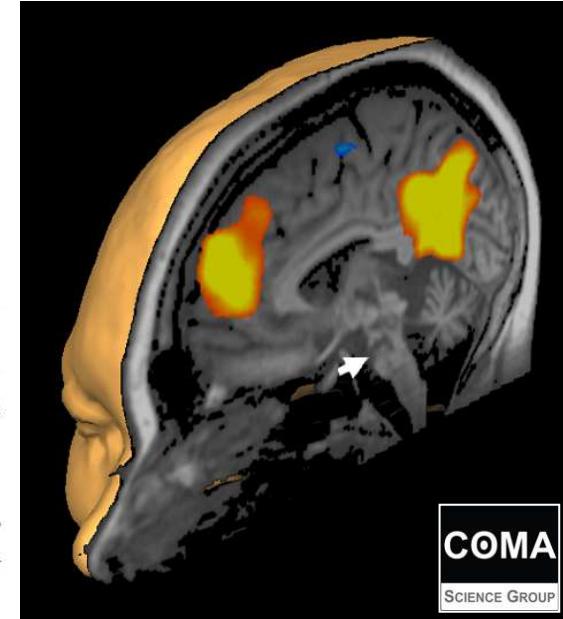
Vésale, 1565



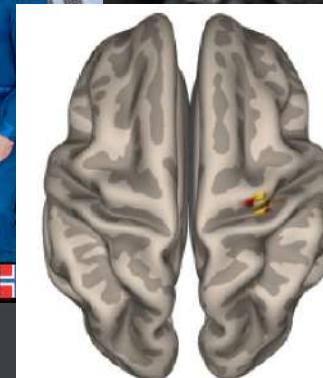
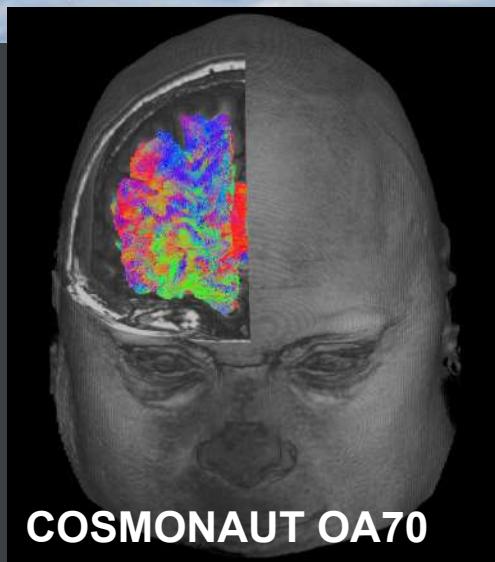
Ramón y Cajal, 1899



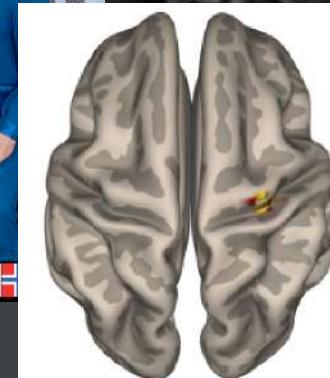
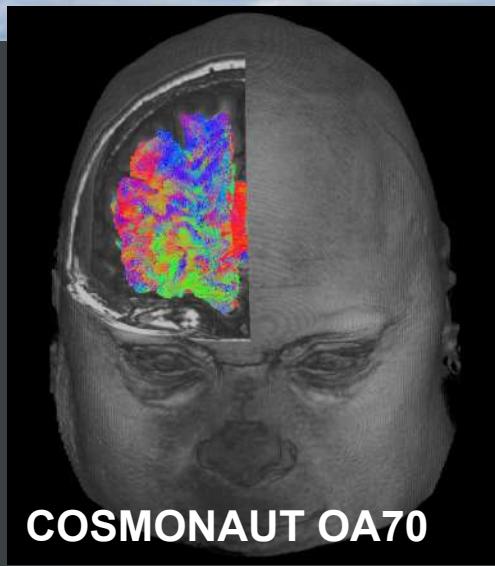
2015



Comment la science peut-elle expliquer la conscience ?



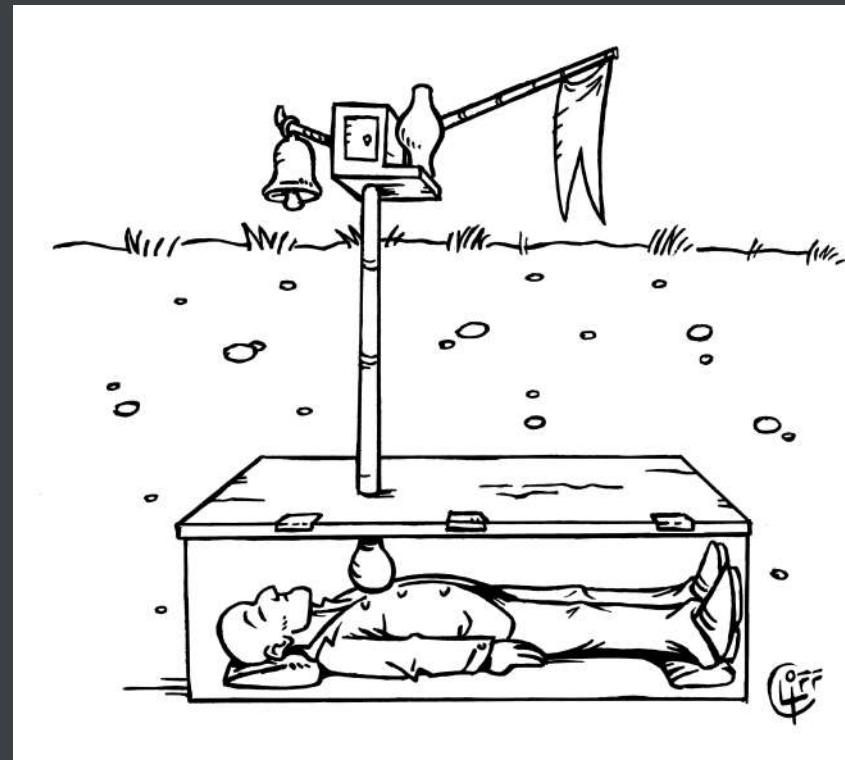
Liège dans l'espace...



Microgravity induced neuroplasticity in astronauts
ESA BRAIN-DTI project, with F Wuyls



"Karnice-Karnicki"



Karnice-Karnicki, 1896

“to a n, j’apport”

LaMeuse.be

Régions › Liège › Actualité

Mis à jour le Jeudi 30 Mai 2013 à 13h26

Liège: un médecin belge au chevet d'un «zombie» en chair et en os

C.V.

Le Pr Steven Laureys, de l'Université de Liège, a étudié, pour la première fois au monde, le cerveau d'un individu persuadé d'être un mort-vivant. Le patient, un Anglais de 49 ans, souffre réellement d'un trouble neurologique, révèlent les clichés réalisés par le neurologue liégeois.



« Docteur, je suis venu vous prouver que je suis mort. Mon cerveau est mort, dans un corps vivant. Je suis un mort-vivant. » C'est en ces termes que Graham, un Anglais aujourd'hui âgé de 49 ans, s'est présenté chez son médecin de famille, il y a neuf ans.

12 réactions

J'aime Partager 475

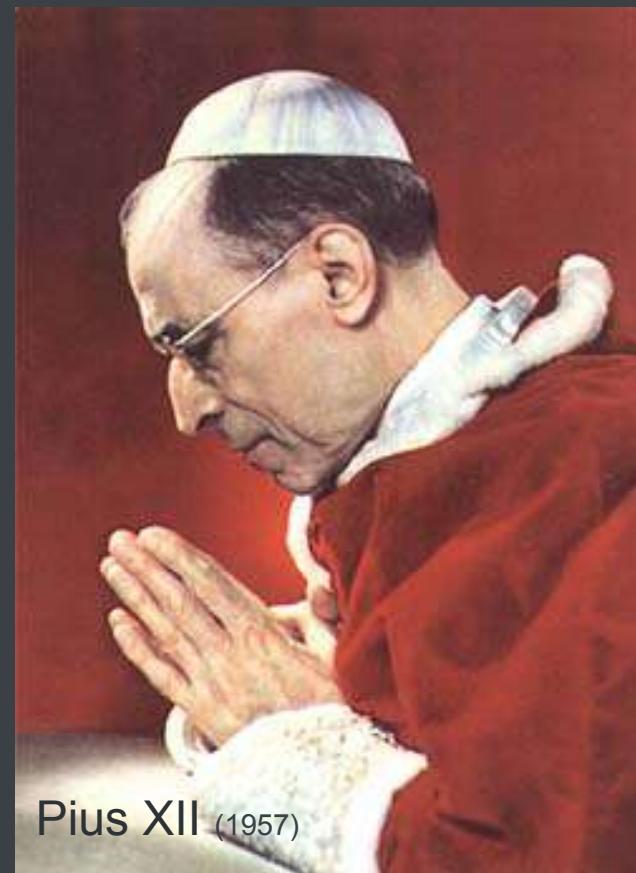
 Tweeter

 8+1 1



Graham, 57, who suffers from Cotard's syndrome, otherwise known as 'zombie' syndrome.
Picture: Richard Austin

Une histoire du «coma»



Et clinique ≠ mort

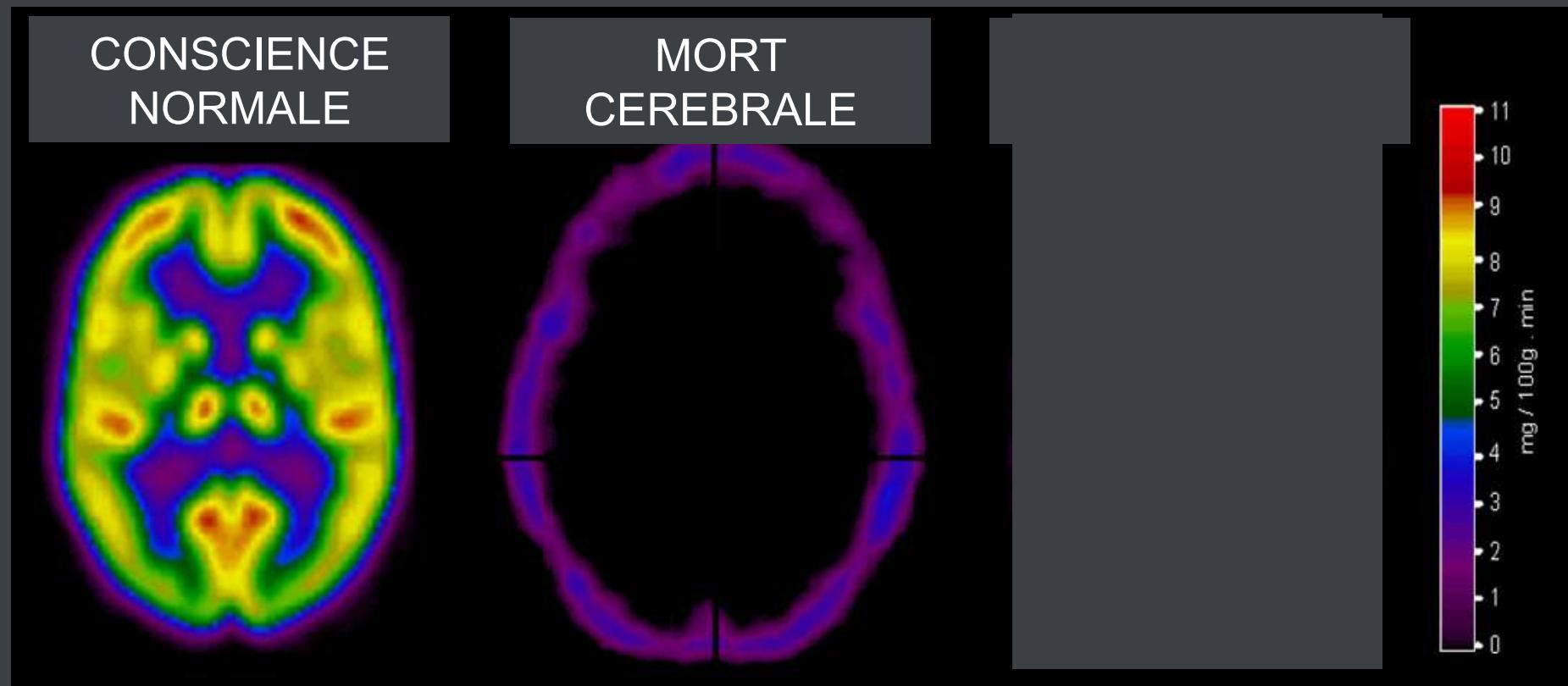
Transplants - Are the donors really dead ?



Depuis les années 50 s
aucu un patient avec les
criteres de mort cérébrale a
recuperé conscience

(Laureys, Nature Reviews Neuroscience 2005)

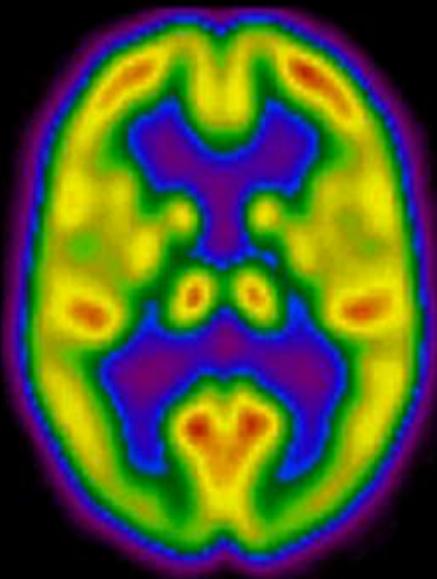
Et cérébrale = mort



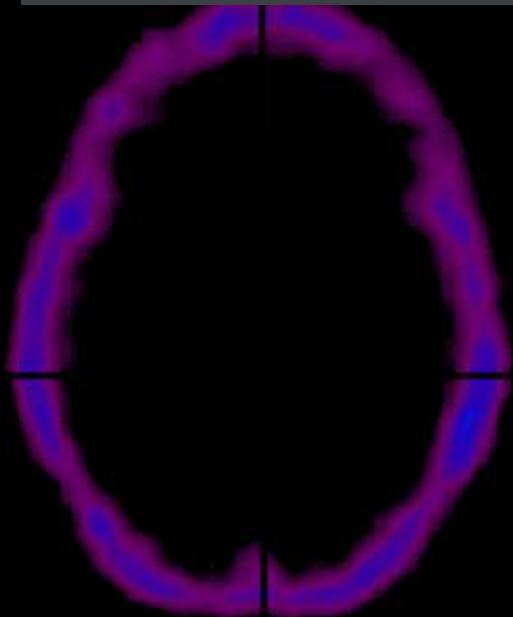
Et clinique ≠ mort



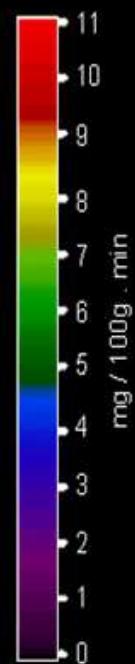
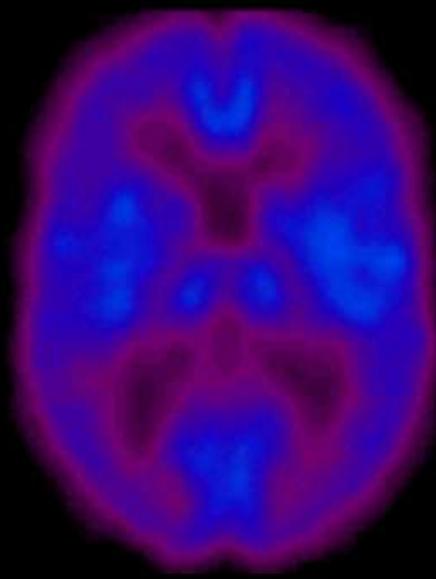
CONSCIENCE
NORMALE



MORT
CEREBRALE

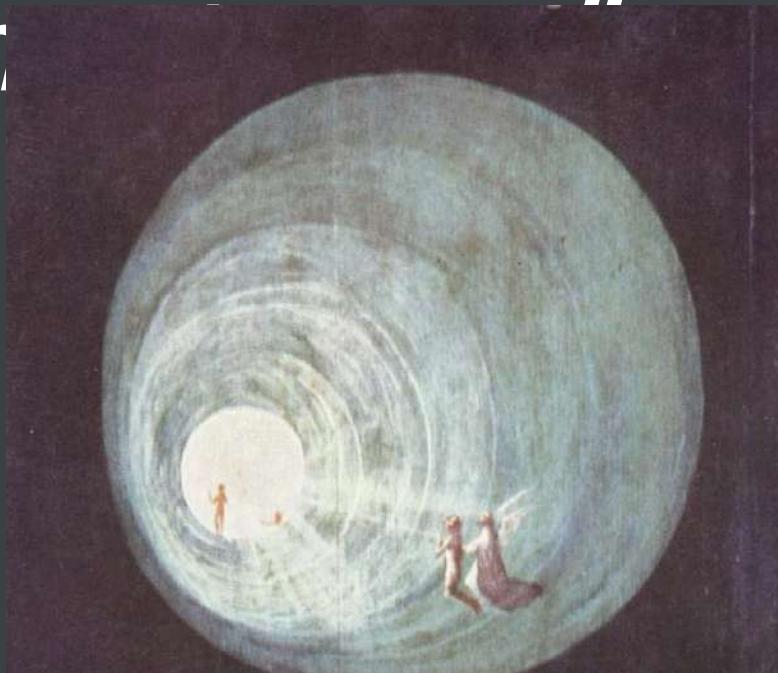


ARRET
CARDIAQUE



**"Docteur, j'ai eu une
expérience de mort"**

ir



Hieronymus Bosch 1500s Visions de l'au-delà

LE SOIR magazine 4093

EXCLUSIF

La vie après la mort

Des avancées étonnantes de scientifiques belges

Percer le mystère des témoignages aux portes de l'Au-delà

REBDOMAIRE N° 4093 - 1^{er} DECEMBRE 2010 BELGIQUE, LUXEMBOURG, ZÉLANDE

48

5 413635100345

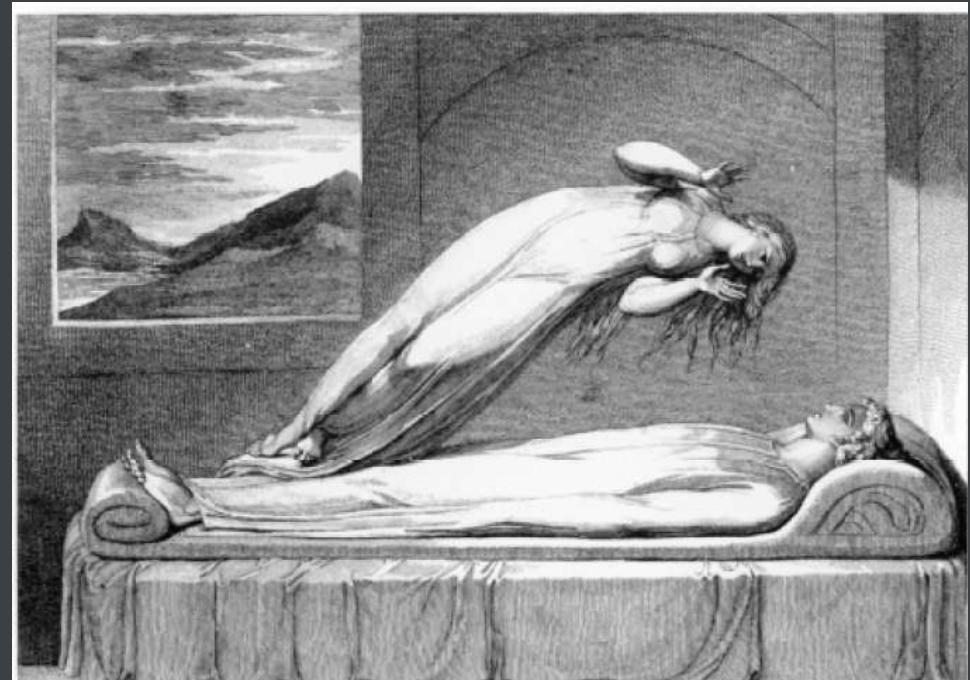
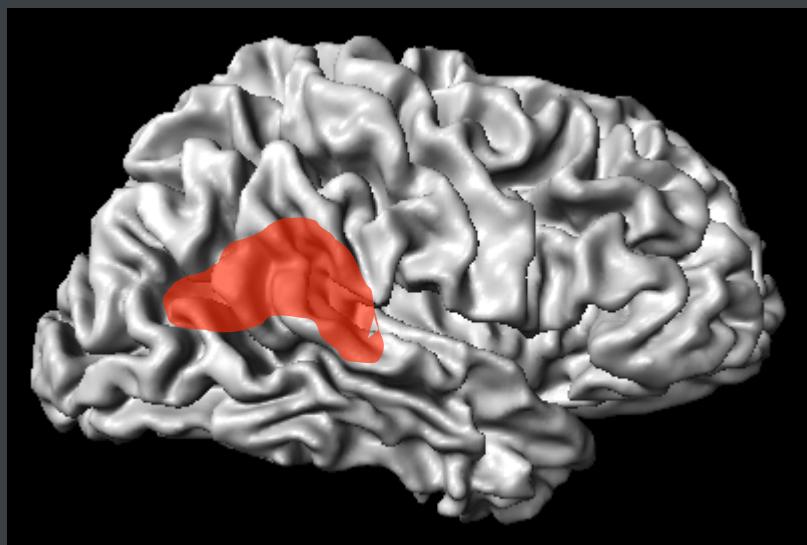
TV du 04.12 au 10.12

www.soirmag.be

Towards a neuro-scientific explanation of Near-Death Experiences?
Vanhaudenhuyse, Thonnard, Laureys
2009 Yearbook of Intensive Care and Emergency Medicine Springer-Verlag



orporation»



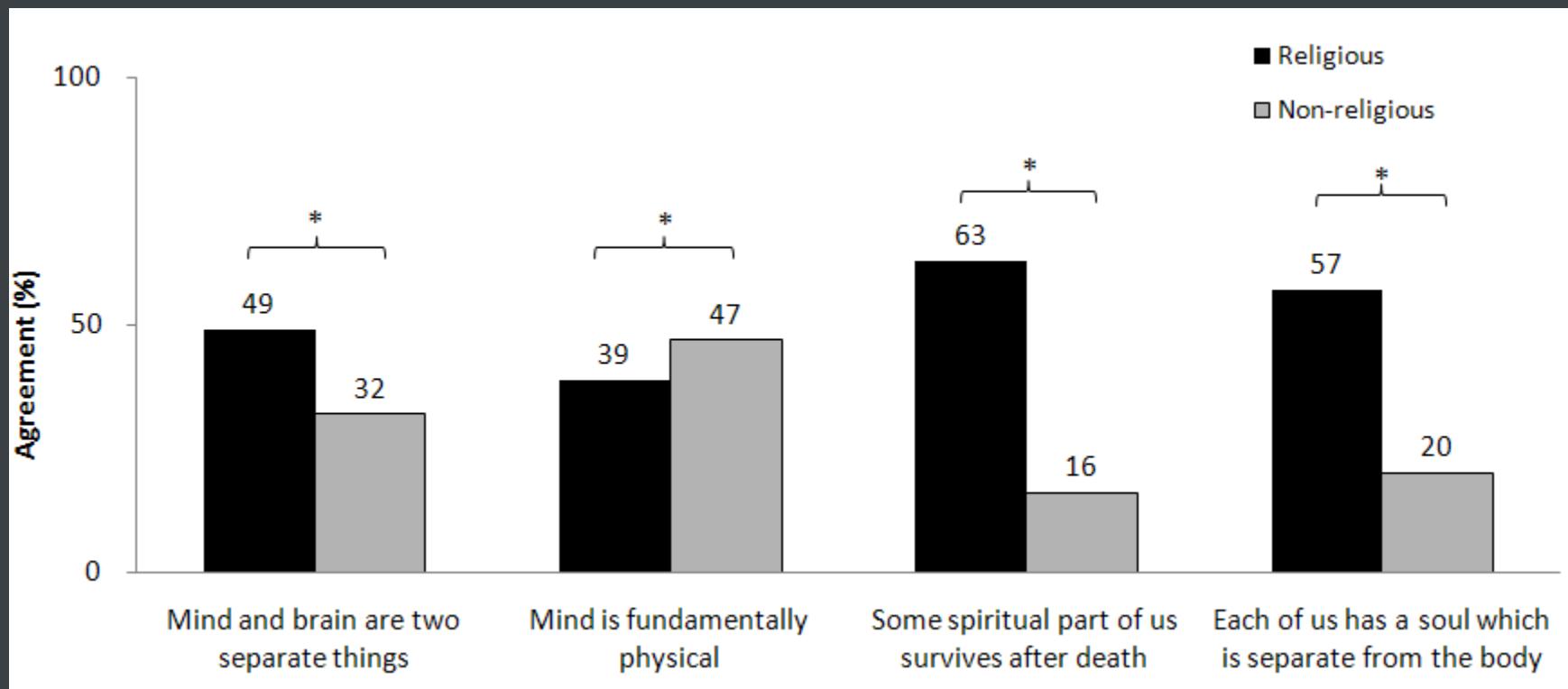
The Soul hovering over the Body reluctantly parting with Life.

Blanke et al Stimulating illusory own-body perceptions. Nature, 2002 (6904)269-70

De Ridder et al Visualizing out-of-body experience in the brain. N Engl J Med, 2007 (357) 1829-1833

Vous êtes votre cerveau!

1858 participants attending scientific meetings on consciousness



Combien pèse la conscience?

1907

**SOUL HAS WEIGHT,
PHYSICIAN THINKS**

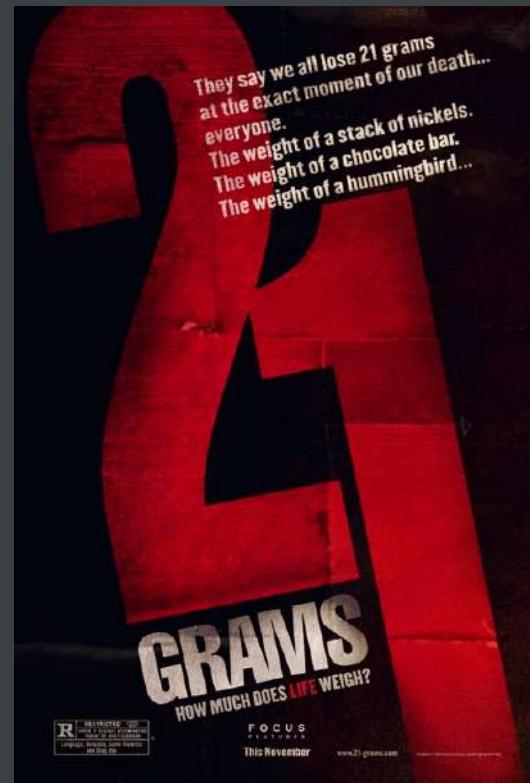
**Dr. Macdougall of Haverhill Tells
of Experiments at
Death.**

LOSS TO BODY RECORDED

Scales Showed an Ounce Gone in One
Case, He Says—Four Other
Doctors Present.

Special to The New York Times.

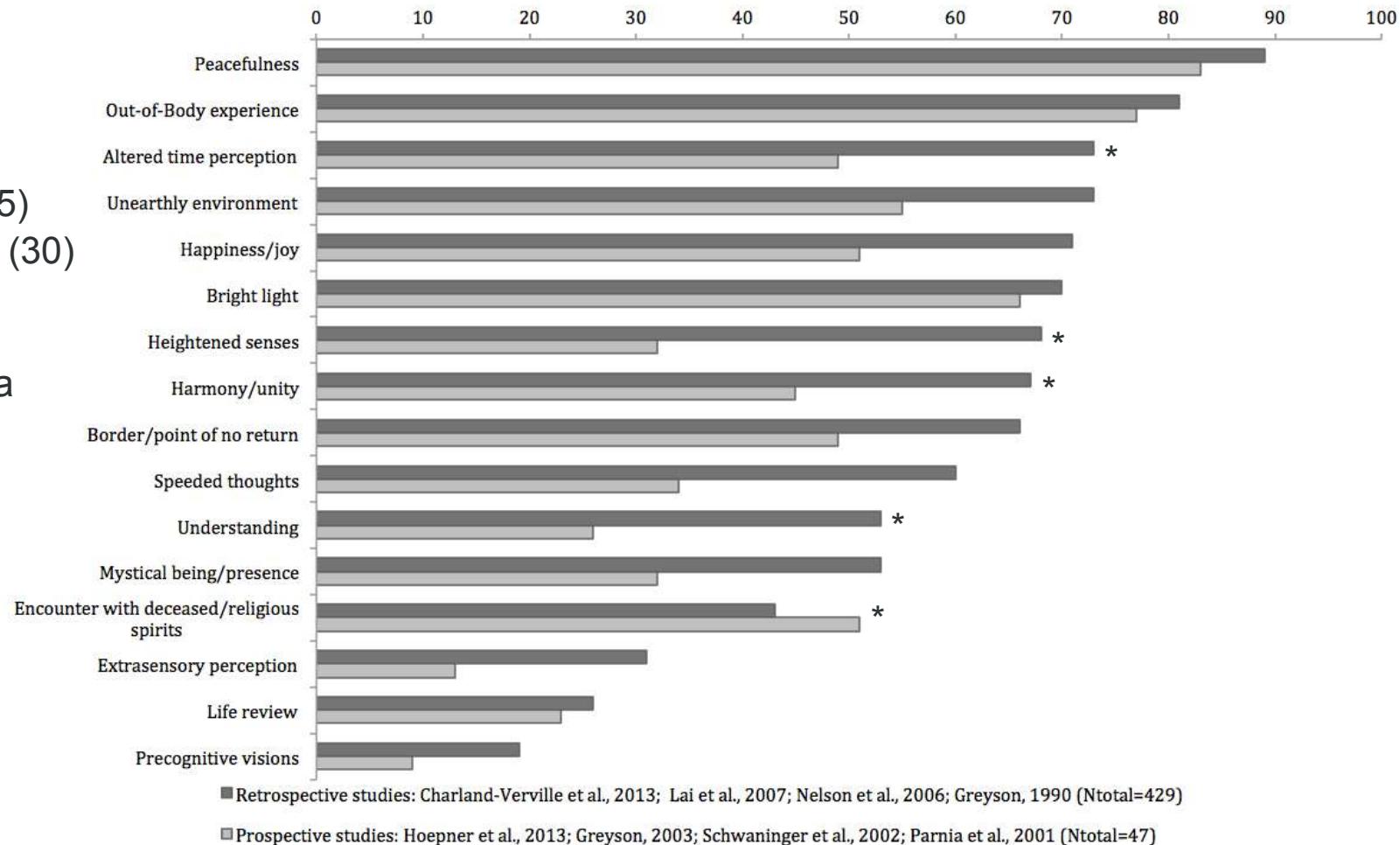
BOSTON, March 10.—That the human soul has a definite weight, which can be determined when it passes from the body, is the belief of Dr. Duncan Macdougall, a reputable physician of Haverhill. He is at the head of a Research Society which for six years has been experimenting in this field. With him, he says, have been associated four other physicians.



99% positive
1% negative

140 coma
 - anoxique (45)
 - traumatique (30)
 - autre(65)

50 pas de coma





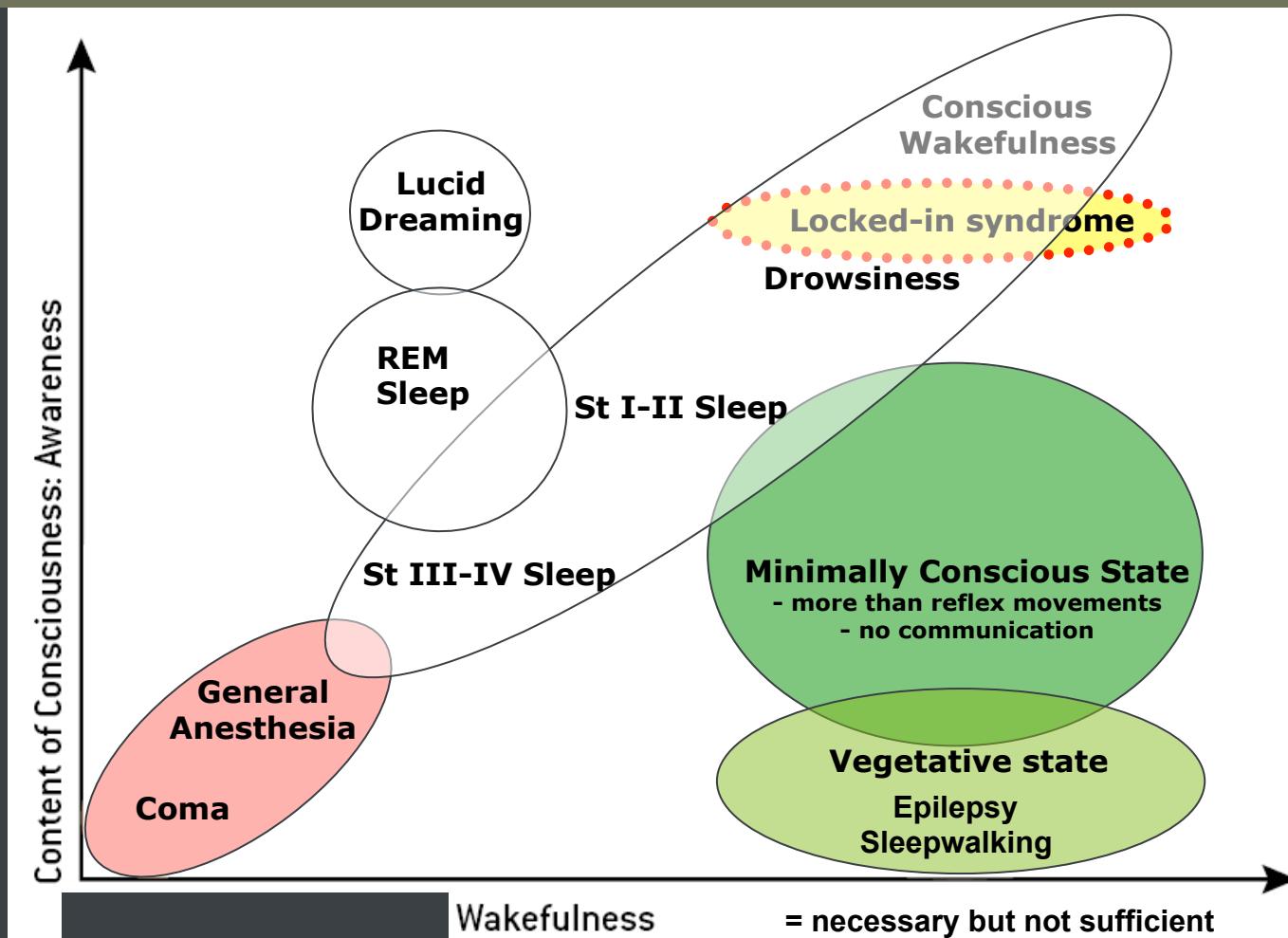
acteur,
est-ce qu'elle est consciente?



30% des diagnostics
“végétatif” sont erronés

Stender et al, Lancet 2014

Réduire la conscience à 2D





Pseudo-coma

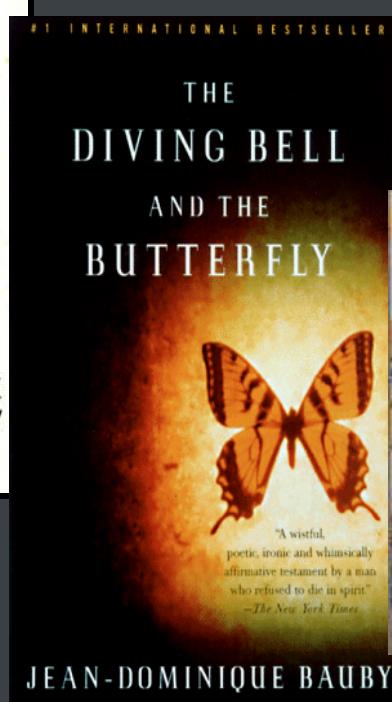


JEAN-DOMINIQUE BAUBY



LE SCAPHANDRE
ET LE PAPILLON

ROBERT LAFFONT



JEAN-DOMINIQUE BAUBY



Thirty years ago a stroke left me in a coma. When I awoke I found myself completely unable to speak. For six years I was considered brain-dead. I was not. As time went by I forgot the sound of my own voice.... But now I have found it again.

If you want to talk to me, I
LOOK UP FOR YES

JULIA TAVALARO
and RICHARD TAYSON



Karl-Heinz Pantke
Locked-in
Gefangen im eigenen Körper

Erschienen von der Stiftung Deutsche Schlaganfall-Hilfe



Laetitia Bohn-Derrien
JE PARLE

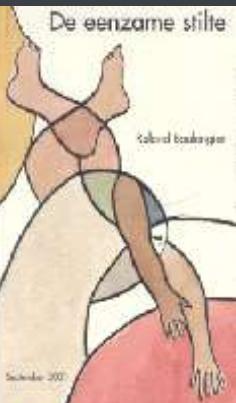
Témoignage

FÉVRIER



PAB-GEASSISTEERD
LEREN LEVEN Roland
Bouleugier

De wereld van een locked-in



De eenzame stilte



Sokker

Salon bouleugier



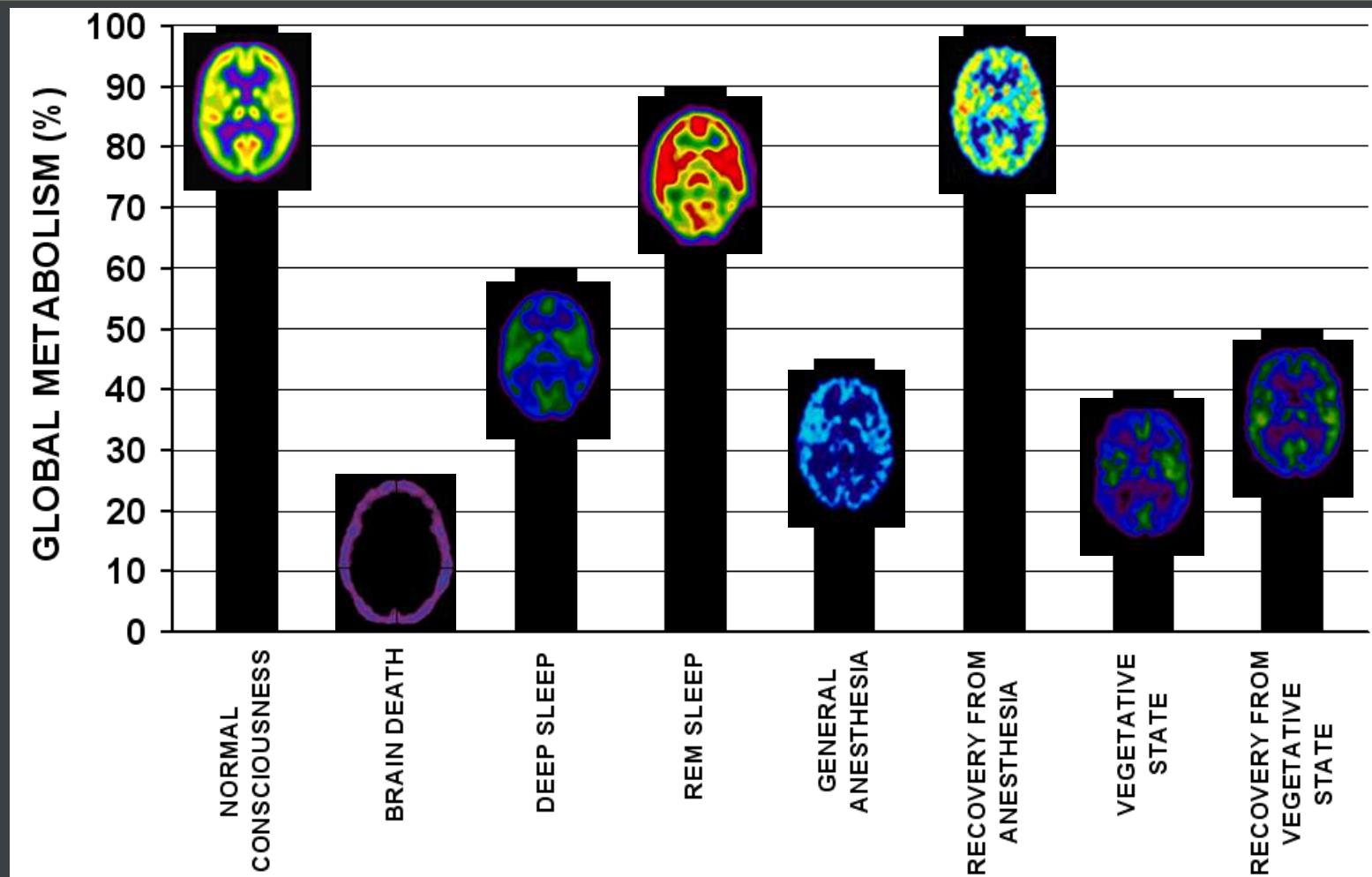
nctionnelle
an

EEG au densité

Stimulation magnétique transcrânienne

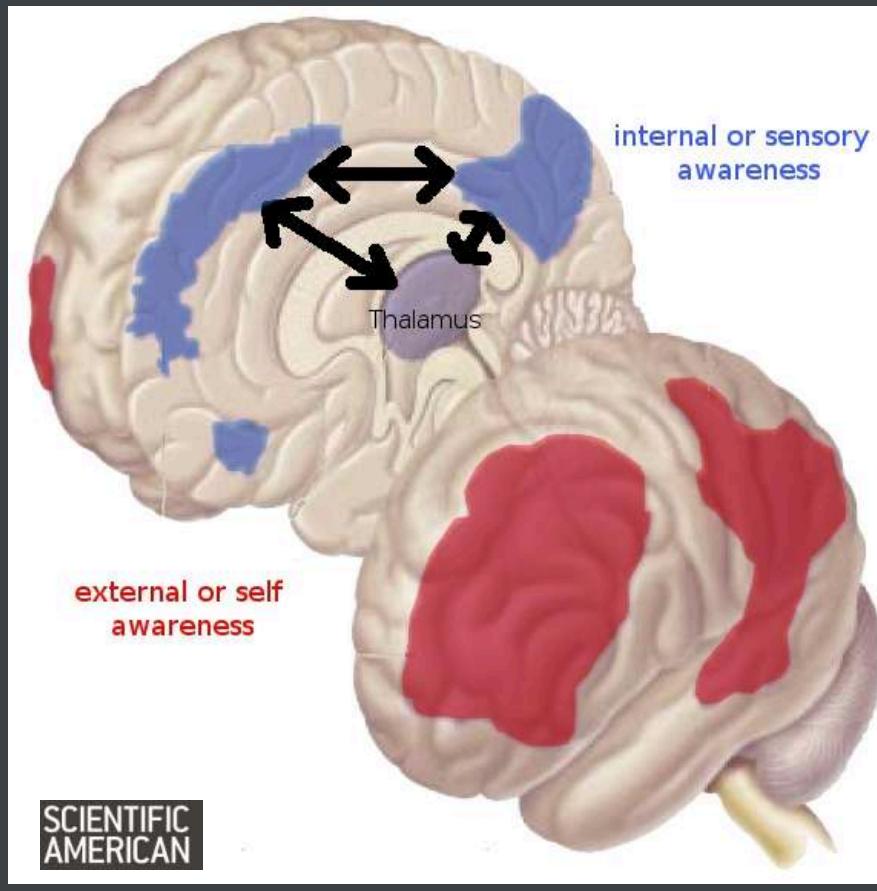


Consommation d'énergie globale

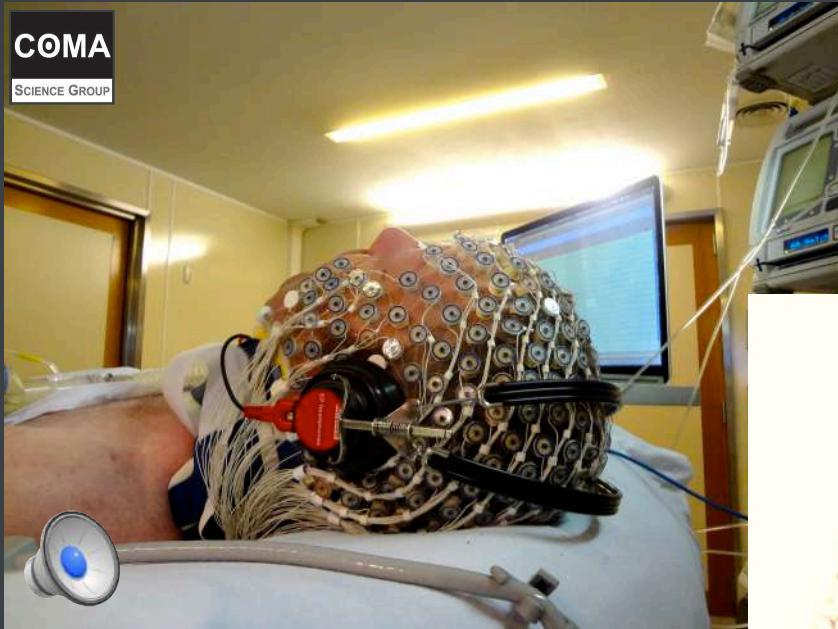


Réseau de la conscience

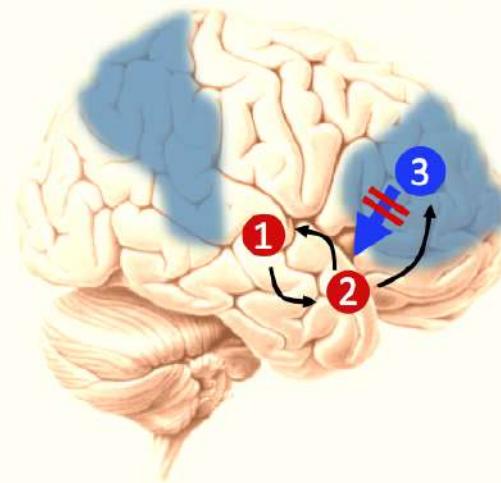
Régions du cerveau atteints en état végétatif /non-répondant



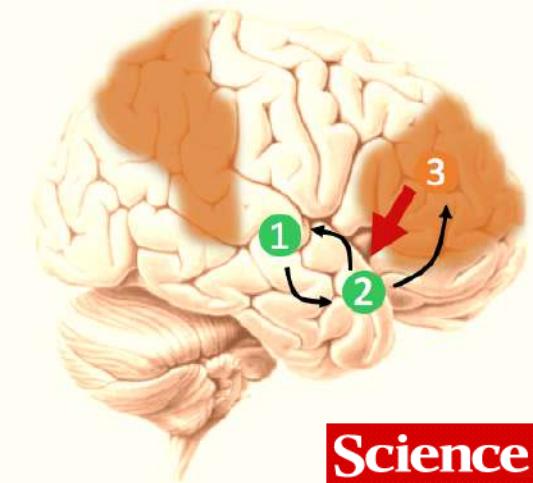
Réseau de la conscience



“VEGETATIVE”
UNRESPONSIVE



MINIMALLY
RESPONSIVE



Science

“Conscient de quoi?”



Laureys & Boly
What is it like to be vegetative or minimally conscious?
Curr Opin Neurol 20 (2007) 609-13

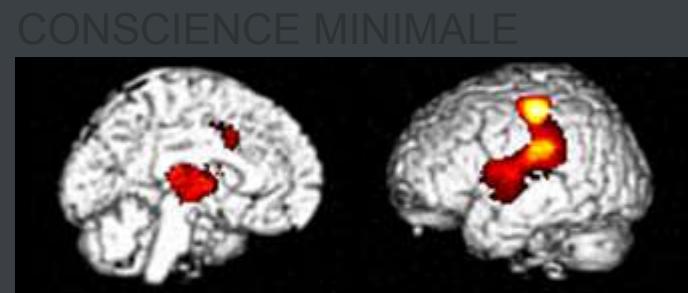
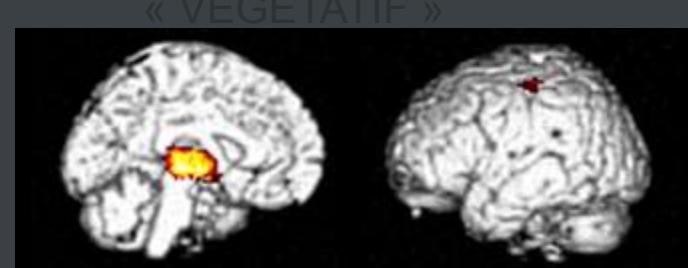
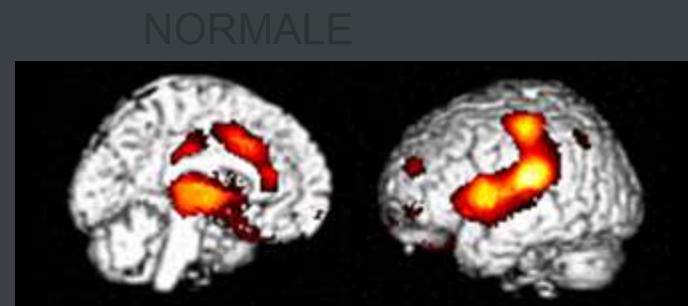
Mesurer la douleur avec le scanner



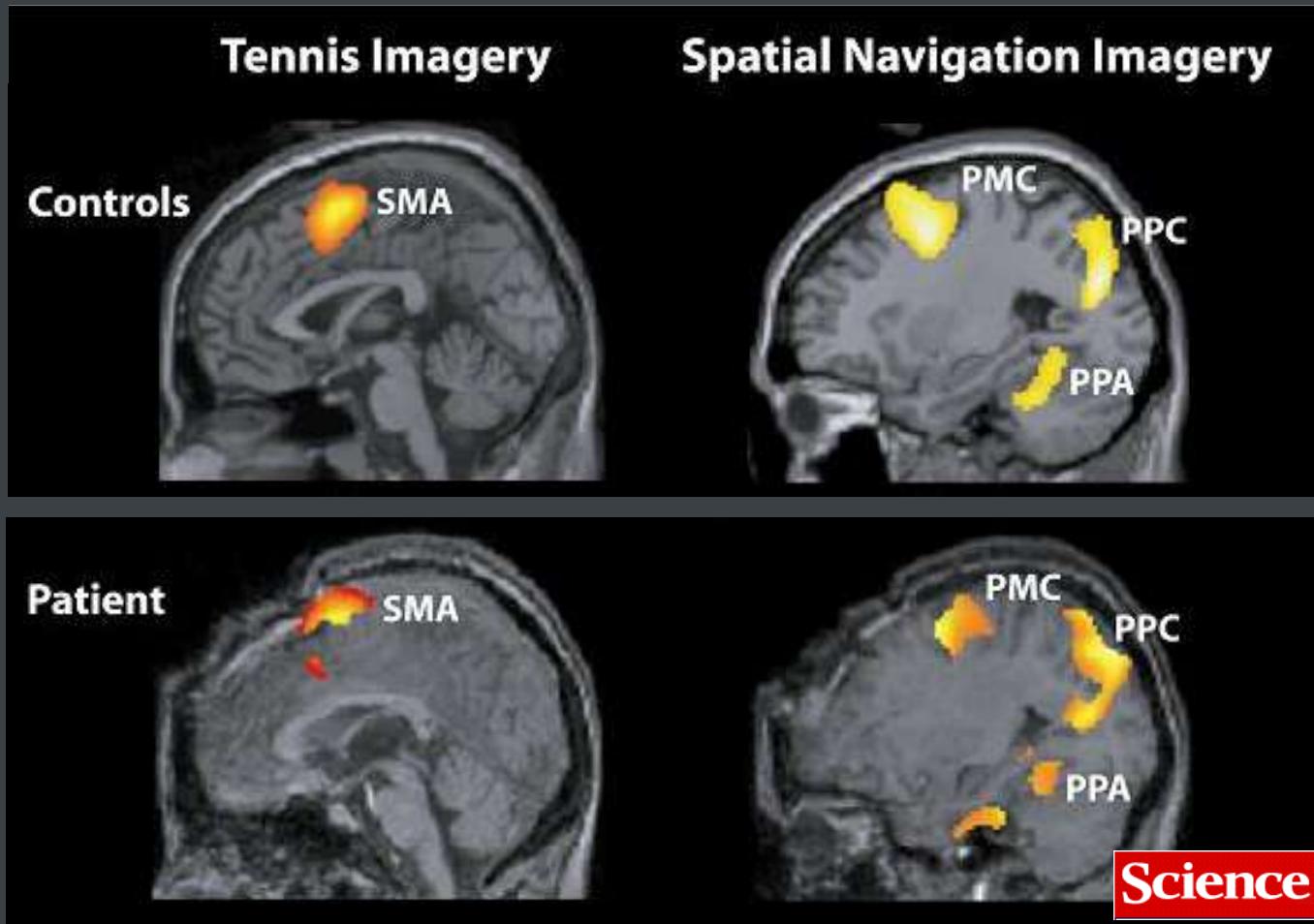
NO RESPONSE

AWAKENING

GRIMACING



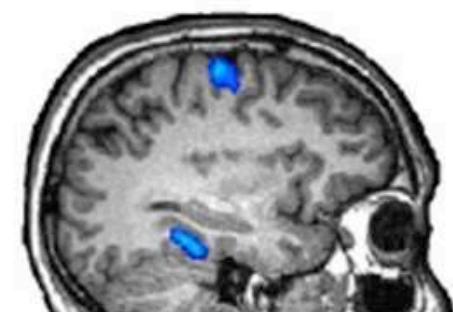
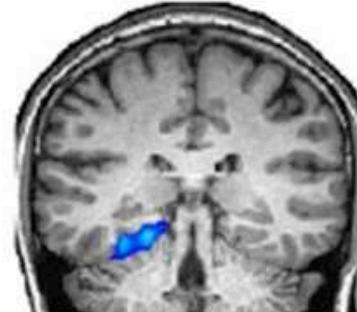
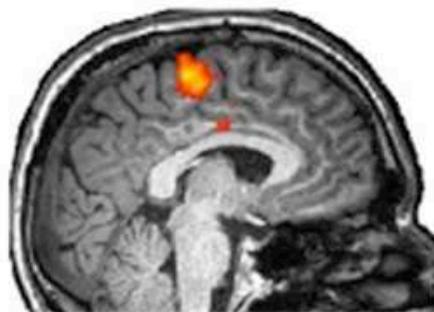
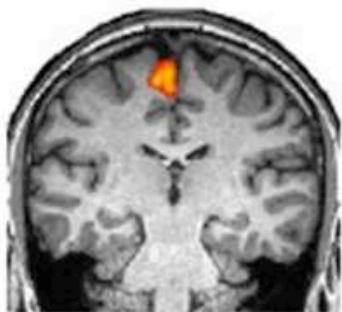
Lire les pensées avec le scanner



Communiquer via l'IRM

The NEW ENGLAND
JOURNAL of MEDICINE

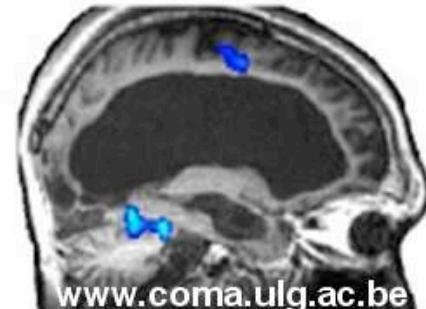
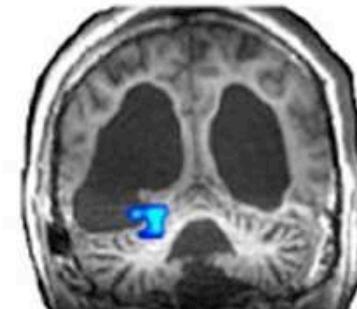
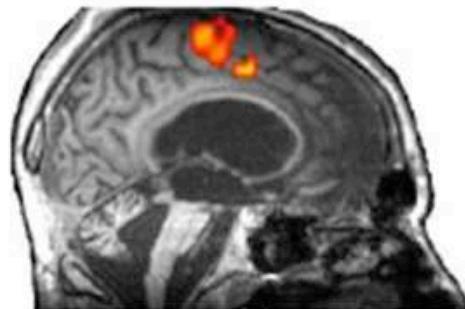
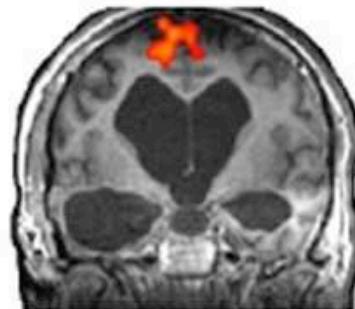
SUJET SAIN



Répond « OUI »

Répond « NON »

« ETAT VEGETATIF »



www.coma.ulg.ac.be

Interface cerveau ordinateur



“BOUGEZ LE PIED”



“BOUGEZ LA MAIN”



SUJET
SAIN

PATIENT
“VEGETATIF”



COMA

SCIENCE GROUP



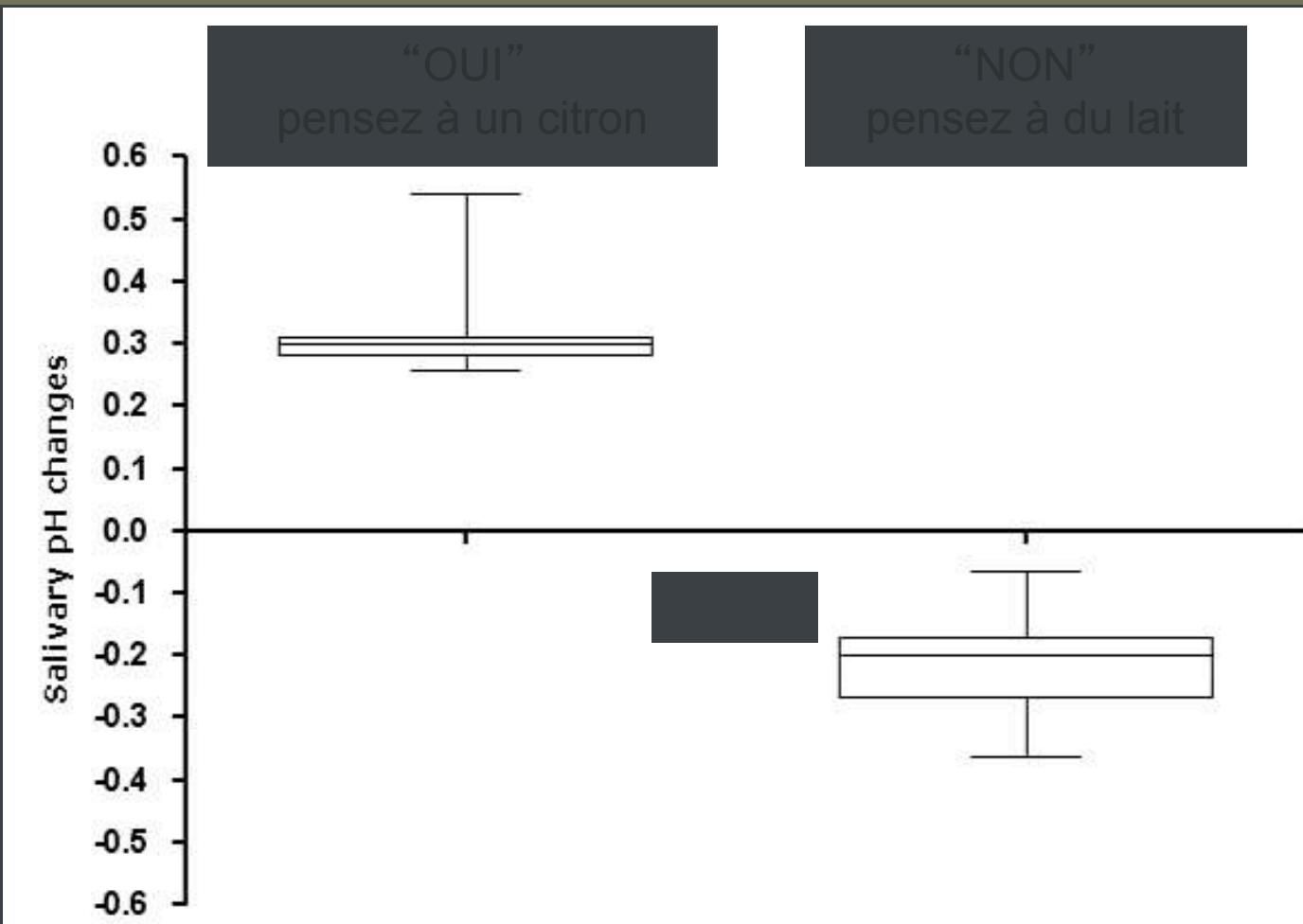
Brain and Mind

The University of Western Ontario

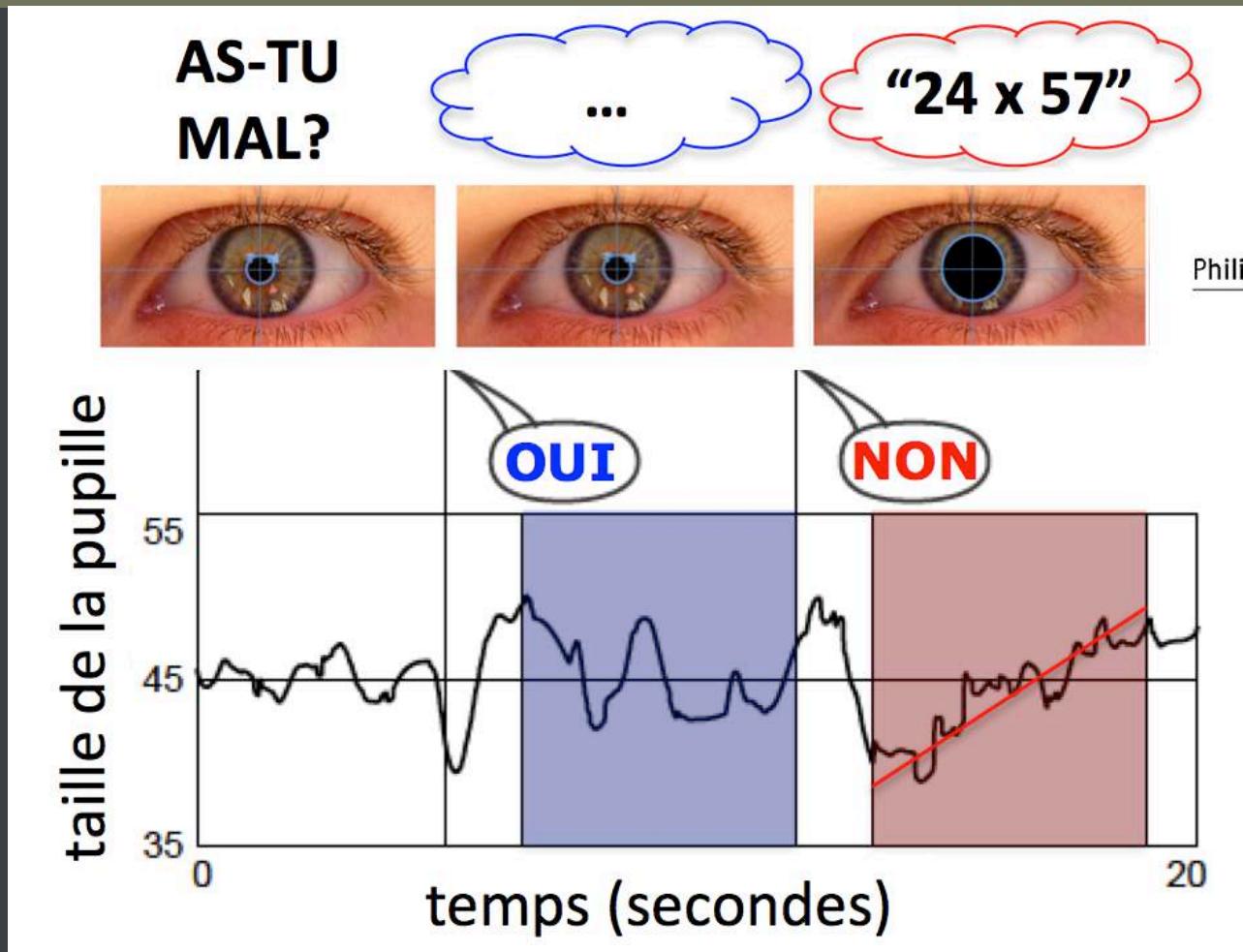


www.thelancet.com Published online November 10, 2011

Communiquer via la salive



Interface cerveau ordinateur



Current
Biology

Philipps



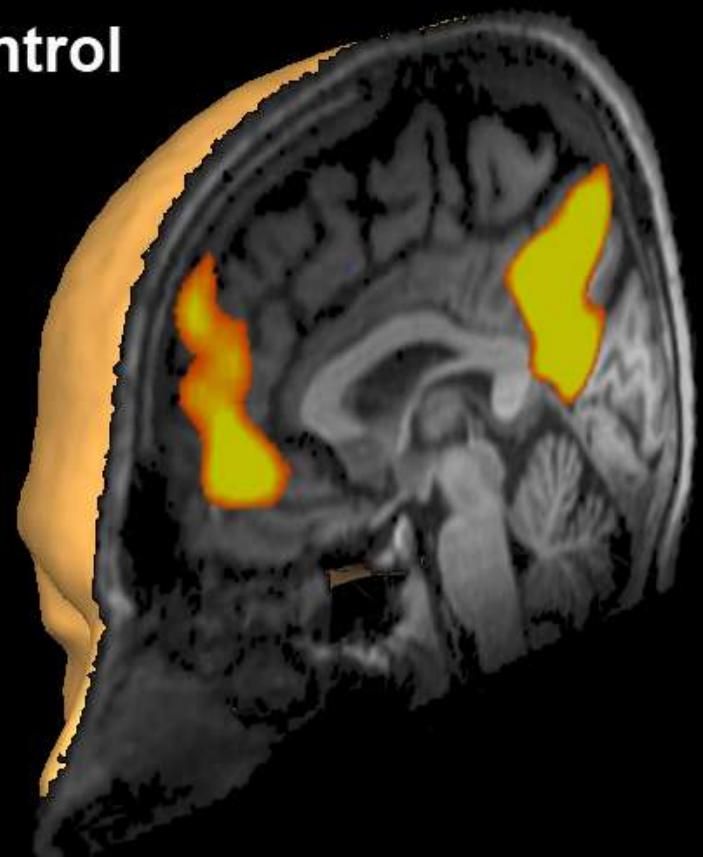
Universität
Marburg



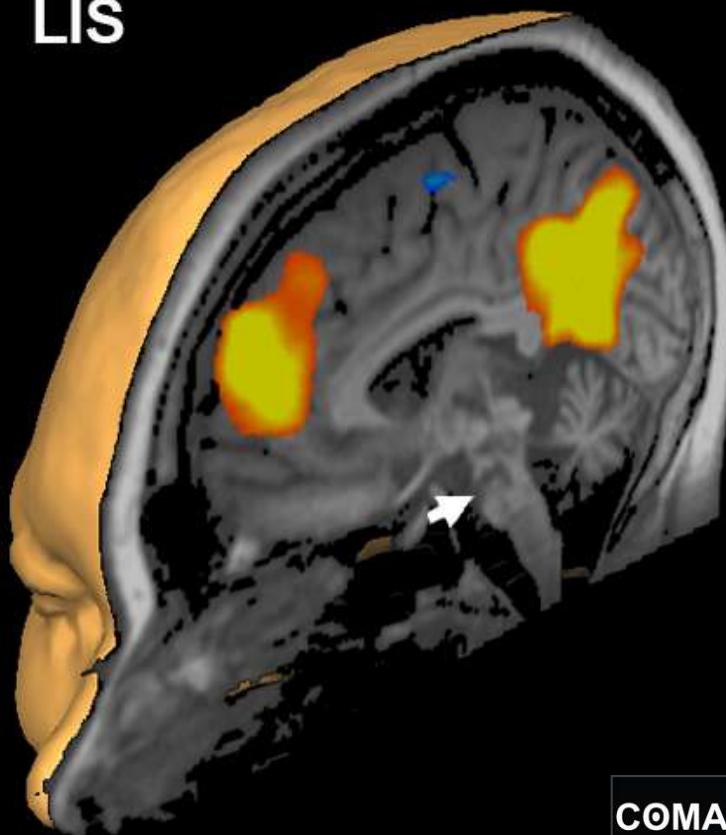
Mesurer la conscience



Control



LIS



<http://neurology.thelancet.com>

COMA
SCIENCE GROUP

Mesurer la conscience



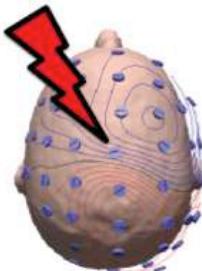
COMA

SCIENCE GROUP

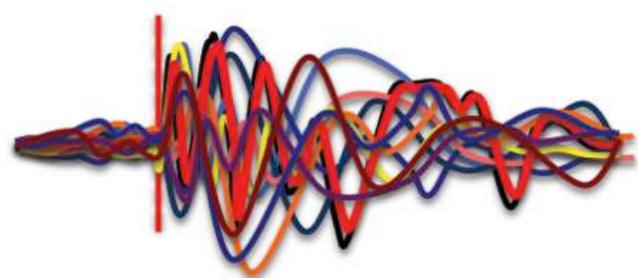
Mesurer la conscience



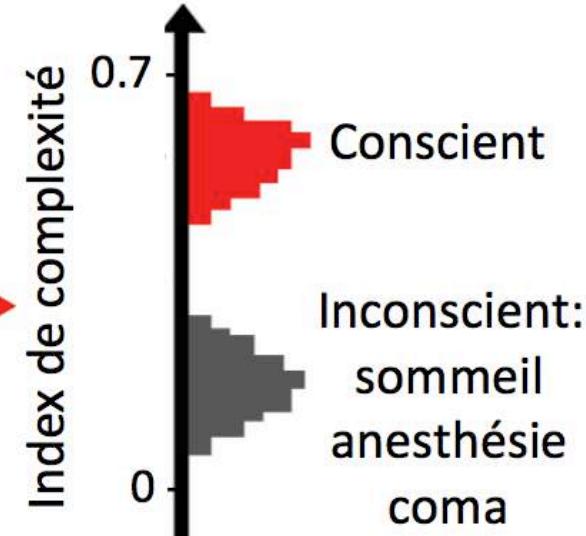
Stimulation
magnétique



Lecture de l'écho
électrique du cerveau

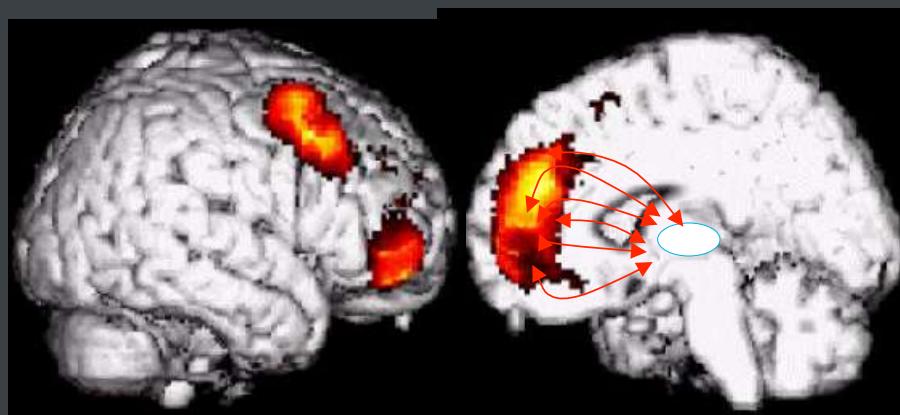


Compression
« zip »



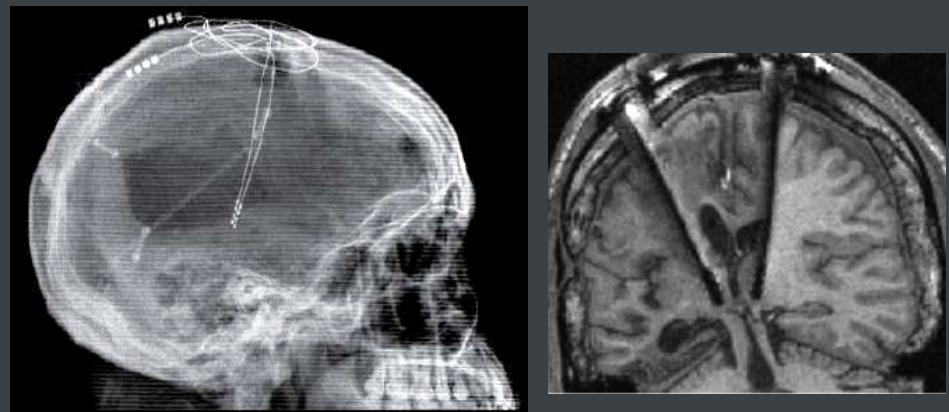
Conscience ≈ connectivité

Noyaux intralaminaires se reconnectent
lors de récupération spontanée de l'état
“végétatif”



Laureys et al, Lancet 2000

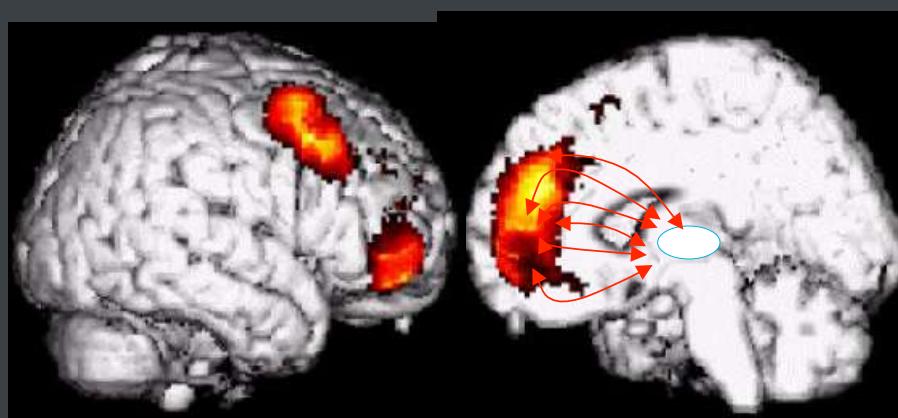
Stimulation des noyaux intralaminaires induit
“récuperation”
en état de conscience minimal



Schiff et al., Nature 2007

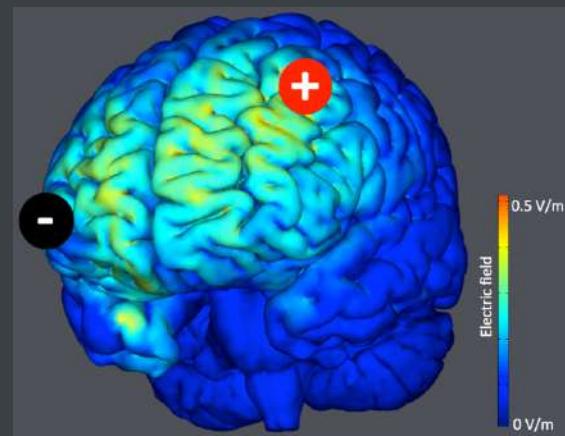
Conscience ≈ connectivité

Noyaux intralaminaires se “reconnectent”
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Laureys et al, Lancet 2000

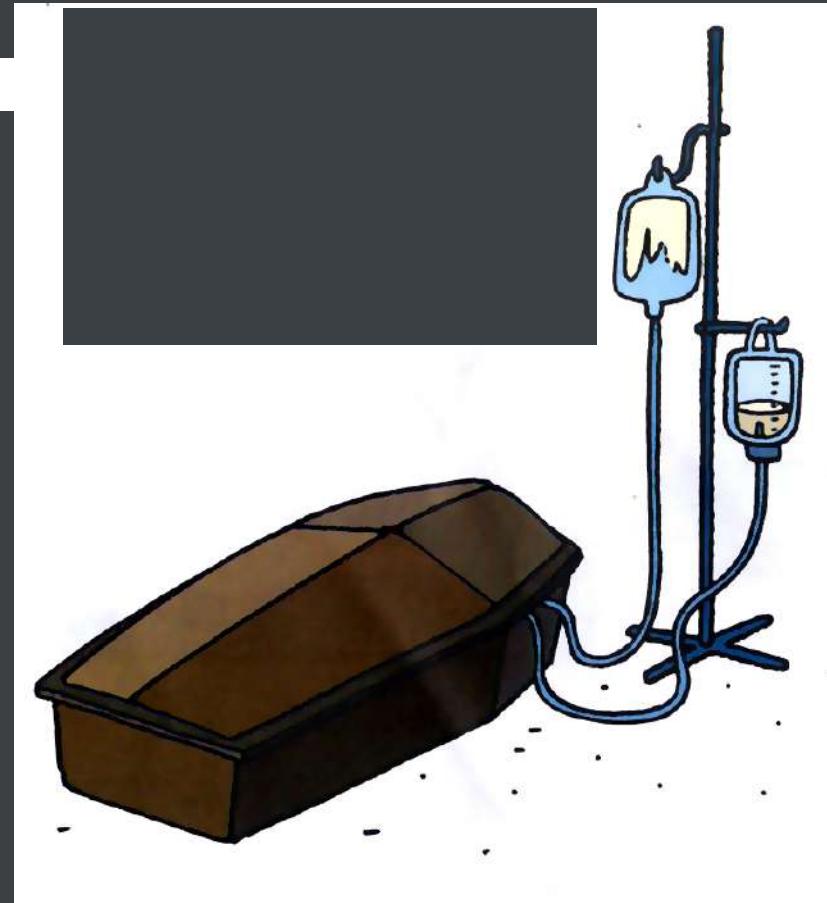
Stimulation électrique transcrânien (tDCS)



Thibaut et al, Neurology 2014



Ethique & fin de vie



Qualité de vie en locked-in

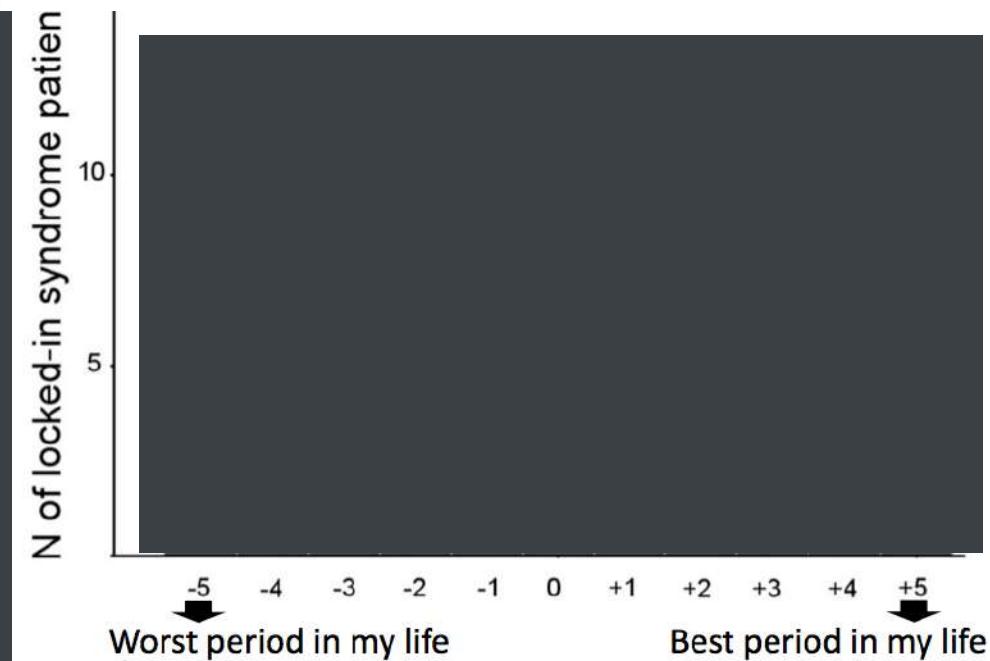
Open Access

Research



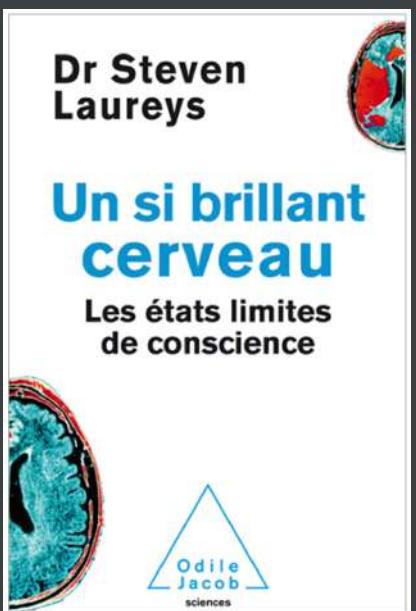
A survey on self-assessed well-being in a cohort of chronic locked-in syndrome patients: happy majority, miserable minority

Marie-Aurélie Bruno,¹ Jan L Bernheim,² Didier Ledoux,¹ Frédéric Pellas,³
Athena Demertzi,¹ Steven Laureys¹





Dr Steven Laureys



Un si brillant cerveau
Les états limites de conscience

fnrs
FREEDOM TO RESEARCH



James S. McDonnell Foundation



coma@ulg.ac.be





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FREEDOM TO RESEARCH



esa
European Space Agency

MIND SCIENCE
FOUNDATION

Université
de Liège

EG
GIGA
ulg

CHU
de Liège

WFN

euan
European Academy of Neurology

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comat@ulg.ac.be

W
RÉGION WALLONNE