

Agradecimientos

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Contraportada: Jennifer Altman, David Concar, Spike Gerrell.

La Asociación Británica de Neurociencias (*British Neuroscience Association; BNA*) es una asociación sin ánimo de lucro registrada con N° 264450.

Lectura adicional

Hay muchos libros fascinantes disponibles para continuar leyendo sobre ciencia y neurociencias. Aquí tenéis una pequeña lista de algunos:



V.S. Ramachandran, (Sandra Blakeslee). **Phantoms in the Brain: Human Nature and the Architecture of the Mind**
Fourth Dimension Publications (1999) ISBN: 1857028953
Un fascinante relato del dolor fantasma de las extremidades y otras alteraciones relacionadas del sistema nervioso.



Oliver Sacks. **The Man Who Mistook His Wife for a Hat.**
Picador (1986) ISBN: 0330294911
Un divertido y bien escrito relato de los efectos del daño cerebral en la mente.



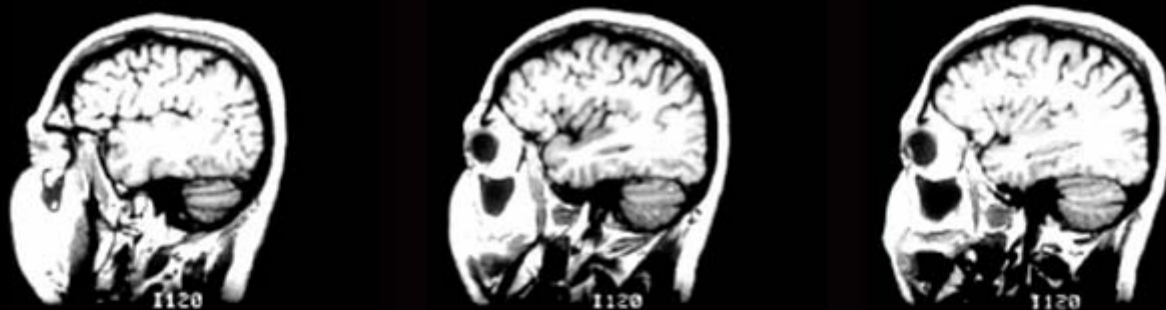
Jean-Dominique Bauby. **The Diving-bell and the Butterfly.**
Fourth Estate (2002) ISBN: 0007139845
Un relato personal y emotivo sobre las consecuencias de un infarto cerebral.



Richard P. Feynman. **Surely You're Joking, Mr Feynman: Adventures of a Curious Character.**
(1992) ISBN: 009917331X
Físico, un hombre orquesta: Un héroe para los jóvenes científicos.



Nancy Rothwell. **Who Wants to Be a Scientist?: Choosing Science as a Career.**
Smudge (Illustrator) Cambridge University Press (2002) ISBN: 0521520924
Consejos prácticos del porqué elegir la ciencia como una carrera.



“Los hombres lo deberían saber todo del cerebro y sólo del cerebro, surgen nuestros placeres, alegrías, risas y bromas, así como nuestros dolores, penas y lágrimas. A través de él pensamos, vemos, oímos y distinguimos lo feo de lo bonito, lo malo de lo bueno, lo agradable de lo desagradable ”

Hipócrates- Siglo V A.C.



Soporte económico:

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INTO THE BRAIN

CEREBRAL CORTEX

A THIN SHEET OF NEURONS WHICH RECEIVES PERCEPTIONS AND CONCLUDES THOUGHT. IT STORES INFORMATION AND DIRECTS FLUID ACTION. IF ALL ITS FOLDY SURF AREA OF A



WOULD HAVE THE TENNIS COURT.

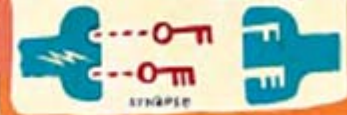
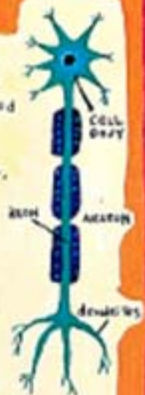
VISION

VISUAL MESSAGES FLOW OUT OF LIGHT SENSITIVE CELLS IN THE RETINA AT THE BACK OF THE EYES, ALONG THE OPTIC NERVE, AND ARE PROCESSED IN A SPECIAL VISION CENTRE BY THE BACK OF THE BRAIN - THE PRIMARY VISUAL CORTIX - THE VISUAL SYSTEM CONSTRUCTS THE IMAGE OF THE SCENE BY PROCESSING INFORMATION ABOUT ITS SHAPE, COLOUR AND BIRTH IN SEPARATE PATHWAYS. THE BRAIN HAS A THREE VISUAL PATHWAY WHICH HANDLES INFORMATION ABOUT MOVING OBJECTS.



CELLS AND SYNAPSES

THE HUMAN BRAIN CONTAINS ABOUT 10¹¹ NEURONS. EACH CELL HAS THREE OR MORE STAKES IN THE 'MANY WAY' WHICH INTO STRUCTURES THAT CAN STORE AND PROCESS INFORMATION. SENDING THEIR MESSAGES OF SIGNAL, OR 'ELECTRIC' SIGNALS. MOST PROGRAMS RELIABLE MESSAGES THROUGH A BUSH OF DENDRITES, OR DENDRITES, AND SEND ELECTRICAL PULSES DOWN LONG FIBRES CALLED AXONS, CARRYING SUBSTANCES KNOWN AS NEUROTRANSMITTERS TO BE RELEASED BY TINY 'BUBBLES' - SYNAPSES. DIFFERENT NEUROTRANSMITTERS STIMULATE NEURONS IN DIFFERENT WAYS. MOST AXON ENDS SET BY BUILDING UP ELECTRIC NEUROTRANSMITTERS.



SOMATOSENSORY CORTEX

PROCESSES SENSATIONS OF TOUCH AND PAIN. TOUCH SENSATIONS FROM DIFFERENT PARTS OF THE BODY ARE REPRESENTED IN DIFFERENT AREAS OF THE SOMATOSENSORY CORTEX AS 'HOMUNCULUS' (LITTLE MAN) HIS PROPORTIONS REFLECT THE SENSITIVITY OF THE BODY PARTS.



MEMORY

MEMORY IS A COLLECTION OF DIVERSE TALENTS - FACTS, EVENTS, FACES, SKILLS. EACH FORM SEEMS TO BE LOCATED IN A DIFFERENT BRAIN AREA. WORKING MEMORY ENABLES US TO HOLD FLEETING MATERIAL IN OUR HEADS FOR DOING COMPLEX TASKS LIKE BUILDING AND UNDERSTANDING SENTENCES. THE FRONTAL LOBE IS ESSENTIAL. DECLARATIVE MEMORY IS KNOWLEDGE ABOUT LANGUAGE, THE WORLD, PAST EXPERIENCES... AND HOW TO GO PLACES. SETTING IT UP REQUIRES THE HIPPOCAMPUS (AND OTHER LIMBIC STRUCTURES) BUT THE FACTS THEM TO BE HELD IN THE CORTEX.



CEREBELLUM

CONTROLS MOVEMENT AND POSTURE BY ADJUSTING THE OUTPUT OF THE MOTOR SYSTEM. IT IS INVOLVED IN EYE MOVEMENTS, IN PLANNING LIMB MOVEMENTS AND IN LEARNING MOTOR SKILLS.

MOVEMENT

THE MOTOR CORTEX PLANS ALL OUR MOVEMENTS. IT COORDINATES WITH THE CEREBELLUM TO FINE-TUNE MOVEMENT AND WITH THE HYPERSENSITIVE BASAL GANGLIA. ONE JOB OF THE BASAL GANGLIA MAY BE TO REGULATE THE ORDER IN WHICH WE MAKE DECISIONS OF MOVEMENTS. IN MANYWAY MOVEMENT, MESSAGES FROM THE SKIN, MUSCLES, INNER EAR AND EYES ARE ALL COMBINED IN THE BRAIN STEM. THE MOTOR CORTEX COORDINATES THE OPERATION.



BASAL GANGLIA

A POORLY UNDERSTOOD COMPLEX OF NODULES WITH MULTIPLE CONNECTIONS TO THE CORTEX AND LIMBIC SYSTEM. IT IS INVOLVED IN SKILLED MOTOR BEHAVIOUR AND MAKING THE BRAIN FEEL GOOD.



ADAPTED FROM "THE SECRET LIFE OF THE BRAIN" PUBLISHED BY:-

New Scientist.

SPiKE GERRELL.