

The empty brain

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aeon:

No matter how hard they try, brain scientists and cognitive psychologists will never find a copy of Beethoven's 5th Symphony in the brain – or copies of words, pictures, grammatical rules or any other kinds of environmental stimuli. The human brain isn't really empty, of course. But it does *not* contain most of the things people think it does – not even simple things such as 'memories'.

Our shoddy thinking about the brain has deep historical roots, but the invention of computers in the 1940s got us especially confused. For more than half a century now, psychologists, linguists, neuroscientists and other experts on human behaviour have been asserting that the human brain works like a computer.

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A wealth of brain studies tells us, in fact, that multiple and sometimes large areas of the brain are often involved in even the most mundane memory tasks. When strong emotions are involved, millions of neurons can become more active. In a [2016 study](#) of survivors of a plane crash by the University of Toronto neuropsychologist Brian Levine and others, recalling the crash increased neural activity in 'the amygdala, medial temporal lobe, anterior and posterior midline, and visual cortex' of the passengers.

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