Genetic memory (psychology)

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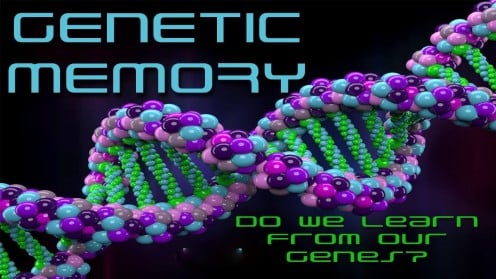
n psychology, genetic memory is a memory present at birth that exists in the absence of sensory experience, and is incorporated into the genome over long spans of time. It is based on the idea that common experiences of a species become incorporated into its genetic code, not by a Lamarckian process that encodes specific memories but by a much vaguer tendency to encode a readiness to respond in certain ways to certain stimuli.

Language

Language, in the modern view, is considered to be only a partial product of genetic memory. The fact that humans can have languages is a property of the nervous system that is present at birth, and thus phylogenetic in character.[citation needed] However, perception of the particular set of phonemes specific to a native language only develops during ontogeny. There is no genetic predisposition towards the phonemic makeup of any single language. Children in a particular country are not genetically predisposed to speak the languages of that country, adding further weight to the assertion that genetic memory is not Lamarckian.[1] However, there is scientific evidence of a gene for perfect pitch which is more common in Asian countries where pitch is critical to the meaning of a spoken word.[citation needed]

Trauma, phobias, and neuropsychiatric disorders

Neuroscientific research on mice suggests that some experiences can influence subsequent generations. In a 2013 study,[2][3] mice trained to fear a specific smell passed on their trained aversion to their descendants, which were then extremely sensitive and fearful of the same smell, even though they had never encountered it, nor been trained to fear it.

Changes in brain structure were also found. The researchers concluded that "[t]he experiences of a parent, even before conceiving, markedly influence both structure and function in the nervous system of subsequent generations".[4]

Scientists speculate that similar genetic mechanisms could be linked with phobias, anxiety, and post-traumatic stress disorders, as well as other neuropsychiatric disorders, in humans.[citation needed]

Historical views

In contrast to the modern view, in the 19th century, biologists considered genetic memory to be a fusion of memory and heredity, and held it to be a Lamarckian mechanism. Ribot in 1881, for example, held that psychological and genetic memory were based upon a common mechanism, and that the former only differed from the latter in that it interacted with consciousness.[5] Hering and Semon developed general theories of memory, the latter inventing the idea of the engram and concomitant processes of engraphy and ecphory. Semon divided memory into genetic memory and central nervous memory.[6]

This 19th-century view is not wholly dead, albeit that it stands in stark contrast to the ideas of neo-Darwinism. In modern psychology, genetic memory is generally considered a false idea. However, biologists such as Stuart A. Newman and Gerd B. Müller have contributed to the idea in the 21st century.

Steven Pinker’s 2003 book, The Blank Slate: The Modern Denial of Human Nature, refutes the “blank slate” theories of human development. Brian Butterworth, in his 1999 book, What Counts: How Every Brain is Hardwired for Math, points out that babies have many specialized innate abilities, including numerical ones that he attributes to a “number module” encoded in the human genome from ancestors 30,000 years ago.

Carl Jung used the term “collective unconscious” to define his even broader concept of inherited traits, intuitions and collective wisdom of the past.

# Citation

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* *Raymond Joseph Corsini (1999). "Genetic memory". The Dictionary of Psychology. Psychology Press. p. 410.*[*ISBN*](https://en.wikipedia.org/wiki/ISBN_(identifier))[*158391028X*](https://en.wikipedia.org/wiki/Special:BookSources/158391028X)*.* —Note that the definition talks of "information based upon" learning and experience, rather than about learning and experience themselves.