

# FUNDAMENTALS OF COGNITIVE NEUROSCIENCE

A BEGINNER'S GUIDE

SECOND EDITION

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ACADEMIC PRESS

An imprint of Elsevier

2018



## BOX 9.1 (cont'd)

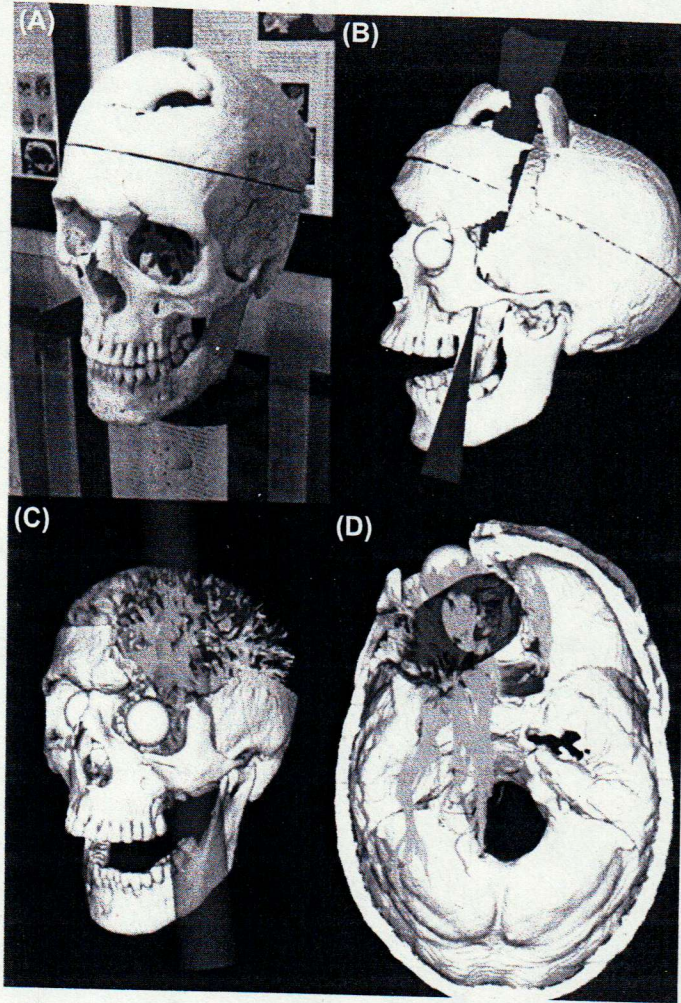


FIGURE 9.1 The reconstruction of the damage to Phineas Gage's head from the tamping iron. (A) The actual skull of Phineas Gage is on display at the Warren Anatomical Museum at Harvard Medical School. Note the damage done by the tamping iron at the top of the skull where the iron exited. (B) Computerized tomography (CT) scans were made of the skull and a reconstruction was made showing the hypothesized location of the tamping iron (shown in red) as it passed through the skull and brain. (C) A rendering of the tamping iron and the brain fibers that were likely damaged in the accident (shown in green). (D) A top view of the fibers that were likely damaged in the accident—in this view, the left hemisphere is shown on the left of the image, and the forehead and face areas are shown at the top of the image. Source: van Horn et al. (2012).



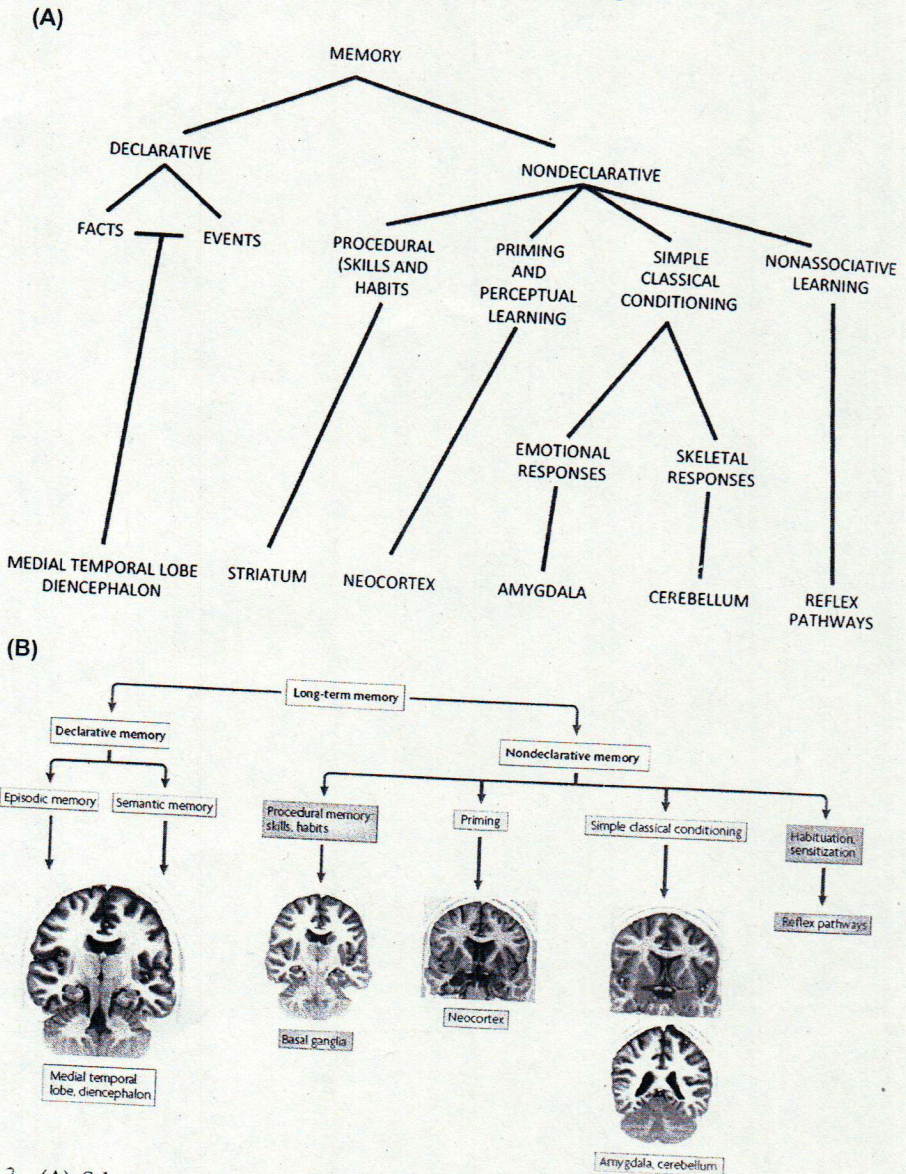


FIGURE 7.2 (A) Schacter and Tulving initially proposed this classification of memory types. Declarative memories have been studied in great detail and are believed to be explicit (conscious). Nondeclarative memory types are said to be unconscious or implicit, but this claim is still debated. We will focus mainly on semantic versus episodic memory, where a great deal of research has been done. (B) Brain regions hypothesized to subserve the memory classifications presented in (A). (A) Source: Squire (2004) and (B) Source: Henke (2010).

memory. You may not remember when you learned that Paris is the capital of France or when you understood a new idea about the human brain. In semantic memory, you do not need to remember the time and place when you learned it. All you need is a meaningful piece of information.