Questions on reading in *How We Learn*

CSC131 The Beauty & Joy of Computing

29 August 2018

1. Match the following people with their research.

   Corkin Dr. Suzanne Corkin

   Fried Professor Itzhak Fried, University of California at Los Angeles and Tel Aviv University

   Gazzaniga Dr. Michael Gazzaniga

   Lashley Dr. Karl Lashley

   Milner Dr. Brenda Milner

   Penfield Dr. Wilder Penfield

   Scoville Dr. William Beecher Scoville

   Firing pattern Placed electrodes in the brains of epileptic patients and detected which neurons fired when the patient was shown images.

   Brains of rats Used surgeries to damage brains of rats, found no loss of memory, and concluded that there is no single part of the brain that holds memories.

   Hippocampus Examined the ability to form and retain memories in an epileptic patient whose hippocampus had been surgically removed

   Split brains Identified ways in which the left and right halves of the brain specialize through experiments with epileptic patients in whom the connections between the two halves of the brain had been cut.

Corkin	Hippocampus
Fried	Firing pattern
Gazzaniga	Split brains
Lashley	Brains of rats
Milner	Hippocampus
Penfield	Hippocampus
Scoville	Hippocampus

2. What unusual disability did Henry Molaison have?

   How We Learn: p. 10, 11

   He could not form new memories. He lost the ability of form new memories following a surgerical operation. The surgeon removed a part of his brain in the hope that the operation would end seizures that afflicted Henry Molaison.

3. Although Henry Molaison could not remember events of the day before, he could learn. What kind of learning was still possible for him?

   How We Learn: p. 13

   Motor learning was still possible for Henry Molaison. He was able to develop physical skills. Examples included learning how to trace a star and how to use a walker.

4. What part of Henry Molaison's brain did Dr. William Beecher Scoville remove?

   How We Learn: p. 11

   Dr. Scoville removed a part of Molaison's brain that included the hippocampus.

5. Benedict Carey gives estimates of the size and capacity of a human brain.

   (a) How many neurons in a human brain?

   (b) How many gigabytes of information can a human brain hold?

   (c) That amount of information is equivalent to how many television programs?

How We Learn: p. 3, 4

(a) 100 billion neurons

(b) one million gigabytes

(c) three million television programs

6. Surgeons sometimes separate the left half of the brain from the right half of the brain in efforts to help people who are afflicated with severe epilepsy. Such surgery does not diminish perception, intelligence, or the ability to think analytically.

   What is an example of an effect that psychologists have been able to measure?

   How We Learn: p. 16

Psychologists are able to provide input to just one side of a patient's brain. They found that the right side of the brain could recognize objects but could not name them. This discovery led to an understanding of the different roles that the two sides of the brain play.

7. Who said this? "If we remembered everything, we should on most occasions be as ill off as if we remembered nothing."

   How We Learn: p. 23

William James, a professor psychology and philosophy at Harvard University, who lived from 1842 to 1910

8. Who said this? "We assume it's all bad, a failure of the system. But more often, forgetting is a friend to learning."

   How We Learn: p. 24

Robert Bjork, a professor of psychology at the University of California at Los Angeles