Organic causes of forgetting. P.394

Brain damage in the memory area is an organic (physiological) cause of forgetting. Damage can be from: disease, stroke, head injury, long term alcoholism, severe malnutrition, brain surgery or aging. EG. Dementia is a result of decreased oxygen supply & atrophy (degeneration).

Types of organic forgetting.

Memory loss due to organic factors is called organic amnesia. Amnesia can be partial, complete, temporary or permanent. Some kinds of amnesia can:
- affect STM only, make learning difficult OR
- cause difficulty in retrieving information from LTM.

We will look at anterograde and retrograde amnesia.

Anterograde amnesia.

- Memories prior to the damage remain BUT memories after the damage are lost. For example people with anterograde amnesia have difficulty learning the names of people they meet since the damage.

Backwards memory loss.   Forward memory loss.

Organic cause of forgetting: Korsakoff’s Syndrome.

- Acute brain inflammation and damage to the hippocampus in the brain due to chronic alcohol abuse.

Organic causes of forgetting: Alzheimer’s disease

- Alzheimer’s is a degenerative disease linked to abnormal changes to the brain, specifically the hippocampus.

Anterograde Amnesia.

The hippocampus can be affected. STM can be affected, leading to an inability to encode and learn new information, thus impairing the transferring of new memories to LTM.

Those with Korsakoff’s syndrome (due to abuse of alcohol) and early stages of Alzheimer’s display anterograde amnesia.
Case study anterograde amnesia: H.M.
- H.M. had surgery removing some temporal lobe and some hippocampus to cure his epilepsy. He could do most things after the operation but had permanent anterograde amnesia.
- He could bring new info. into STM, thus sensory memory was OK, but he could not process info. into LTM.

Anterograde amnesia
The information processing theory can explain anterograde amnesia. That is, info. goes from SM to STM and then LTM. Anterograde amnesiacs can attend to info. in SM, transfer it to STM. It can be manipulated in STM and rehearsed but once rehearsing stops, the info. can’t go to LTM because the structures required to do this are damaged. Thus no new memories can be formed.

Hippocampus and LTMs.
- Thus, a damaged or removed hippocampus can lead to anterograde amnesia as in Korsakoff’s syndrome & Alzheimer’s disease. Thus they can’t form new LTMs.
- While you hippocampus is damaged you can’t form LTMs but when it heals, you can, again form LTMs.

Retrograde Amnesia.
- Retrograde amnesia is when the information forgotten is that which occurred before the brain damage.
- (Retro means backwards in time.)
- We may forget a few moments, days, weeks or years.
- It is usually temporary and often caused by a blow to the head but electrocompulsive therapy (ECT) can also cause it.

Retrograde amnesia: case study
- 22-year-old thrown from motor bike in 1933. A week after the accident he thought it was 1922 and he was a boy again. Gradually he began to remember. It took 10 weeks for him to recover his memory completely.
Retrograde amnesia

- Usually the inability to remember events disappears. The period of time for which the memory is lost shrinks as the person gradually recovers their memory.
- Retrograde amnesiacs generally do NOT recall their memories IMMEDIATELY before the accident.

Retrograde amnesia in terms of consolidation

- The information processing model explains retrograde amnesia in that there is an interruption to the consolidation to the memory trace.

Retrograde amnesia: consolidation theory

- That is, immediately before the brain trauma, the STM would be processing information into LTM and the trauma interrupts the consolidation of that information into LTM, therefore this info. is lost. That’s why retrograde amnesiacs never recover the info. immediately before the trauma.

Organic Forgetting: anterograde and retrograde amnesia.

- Remember, organic refers to the physical (damage or trauma to brain associated with memory) rather than psychological causes.

Next topic: Memory Decline over a lifespan.