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Probability of Memories being Stored Chemically in our Brains

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Abstract: ***The process by which memories are stored in our brains is not known until today. Therefore, this theory mainly focuses on the process by which memories are stored in our brain. However, it is abstract but linked with common real world phenomenon. Memories can be stored chemically, magnetically, electrically or any kind of way in our brains. It is mentioned that this theory cannot deny another processes but strongly recommends the chemical storing mechanism. According to this theory -- some regions are present in Cerebrum region, which namely "Memory Storage Region". Consists of two parts, namely, 1) Factor 2) Cluster of Special Cells(CSC). "CSC" secretes chemical substances. The "Particular Secretory Unit" or "PSU". This "PSU" has some categories and each category is involved for a particular sense organ. And some types of chemicals are including in a category. For a particular event, different type of chemicals units of a same category are bound orderly with each other and form a chemical chain. This chain gives a feeling, respect to this event, and stores it in Memory Storage Region of brain as a memory. Initially it is active but gradually loses its energy. Again when it gets charged, it is reactivated. This time animal can remember their previous experience.***

Keywords: Brain, Memory, Chemical Memory, Mechanism of chemical memory storing, Nervous System

1. Introduction

The Nervous System of a living organism takes impulses from its environment. Animals containing developed brain can store it as a memory. Though the process of storing mechanism discussed below works for humans, but for most of developed living organisms (organisms having capacity of storing memories), this mechanism is the same. A virtual memory storage process is elaborated in this essay. In case of a human, memory is mainly stored in the prosencephalon. Actually, some specific regions of Prosencephalon stores memories, this region is called 'Memory Storage' or 'MS'. Based on function Memory Storages can be divided into 5 parts:-

1) Memory Storage of Eye (MSE)
2) Memory Storage of Ear (MSE'r)
3) Memory Storage of Tongue (MST)
4) Memory Storage of Skin (MSS)
5) Memory Storage of Nose (MSN)

Where each part stores Memory of its associated organ. There can be many ways to store a memory on to the Brain but among the following methods, chemically storing memory is most acceptable.

Probability of memories being stored by magnetic means:

This type of mechanism can be seen in computer hard disk drives. There is just a large shiny, circular plate called "platter", divided into billons of tiny areas. Each one of those can be independently magnetized (to store a '1') or demagnetized (to store a '0').This can be used to store strings of binary data on the "platter".

But brain does not contain anything like a platter or this mechanism. Therefore, magnetic memory in brain is not possible.

Probability of memories being stored electrically:

Mostly computers use capacitors and transistors to hold electrical charge. The charged state of a capacitor or transistors can be called as a '1' and not charged state can be called as '0' and in this mechanism, a computer can store binary data.

Though brain is made with neurons and neurolemas on neuron have electrical potential but memories are not stored as electrical means because:-

1) If a particular nerve impulse is created and stored in the brain as a memory, the neurons storing it will go through continuous depolarization-repolarization cycles resulting a vivid memory of all events. But in reality this is not what happens.
2) Electrical impulses stored in the brain can interfere and destroy each other.
3) Brain cannot store complex events fast. However, a digital device can quickly store something complex electrically.

This proves memories are not stored electrically in the brain.

Probability of being chemical memory:

As memories in the brain are neither stored electrically nor by magnetic means it can be stored chemically. This is described below-

Virtually each Memory Storage of an organ can be divided into two parts:-

- Factor
- Cluster of Special Cells(CSC)

a) **Factor:** The imaginary structure of Factors is like 'Volvox' on the surface resides 'Cluster of Special Cells'. This type of shape gives it more surface area, which can accommodate more CSC's .CSC produced 'PSU' can quickly get into the associated Factor in this arrangement. Factor has some outer projections that consist of - a) Nob , b)Stand.
b) **Cluster of Special Cells (CSC):** These cells reside on the surface of a Factor. These cells produce 'Particular Secretory Unit 'or PSU, These cells have branches which helps connect with other cells or the factor.

Characteristics of Particular Secretory Unit

Every Memory Storage of an Organ has its own category of different chemicals. Units of a chemical category assemble in specific orders to create a chemical chain. They work as a particular sense and gets stored as a memory.

Memory Storage of each Organ has its own category of chemicals. For Humans 5 categories for 5 Sense Organs. Each Category is different from others or they would create same sense for each organ. For example --

Some event we observe with our eyes creates the following chemical chain- 'abcdefgh' in its own Memory Storage and this chain creates a particular sense in brain. But if we hear a sound with our ears and it creates a chemical chain like before 'abcdefgh' , both will create same sensory response ,which is not the case. Therefore, the chemicals must be of different categories.

Process of Storing a Memory:

When an Organism takes stimulus from the environment 'Factor' creates chemical chain according to the stimulus. This chemical chain consists of chemical units secreted by 'Cluster of Special Cells'.

'Factor' contains some of these chemical units, these create chemical chains for sudden created stimulus, and these chemical chains are for emergency events. However, for continuous stimulus the 'Cluster of Special Cells' produces the chemical units forming a chemical chain.

These newly created chemical chains initially remain active but gets weaker gradually. That is why newly created memories are stronger but gets weaker after some time. Observing that event again can bring back that memory. Because observing same event creates a similar chemical chain as the previous event and the old chemical chain gets active.

Now this chemical chain creates a specific Sense in the brain where this specific sense is the memory of a previously observed event.

If an event is important (which the brain thinks is important), a chemical chain is created and moves to the Factor's peripheral region and gets stored as a memory. The chain gets active with a specific sense afterwards and creates a specific sense, which is the memory of a previous event. A memory stored in the peripheral region stays active for a long period. These are Long Term Memory. However, if stayed untouched for a very long period the chains are reduced to unit of chemicals.

As a result, we cannot remember old events completely because the reduction of Long Term Memory starts.

If an event is less important (which the brain thinks is less important), created chemical chains initially remain in Factor's central region but is disintegrated to units after sometime and is used to make another chain of chemicals, this is short-term memory.

We take different stimulus from the environment regularly, but do not remember all of them. But they all create their own specific sense. Chemical chains created by these events breaks down to chemical units easily. These types of memories can be called Super Short Term Memory.

This 'Chemical Theory' can explain following real life events -

a) We cannot completely recall very old events; this can be a result of chemical chains disintegrating with time. In many cases, the Brain tries to reconstruct the chemical chain of a memory when we try to remember it, but cannot always recreate it. For example - when we try to remember something that we almost forgot, we do not get the same memory instead we get something that is related to that memory. This is because the brain cannot always reconstruct the chemical chains associated with the memory.
b) Humans tend to forget things easily when they are old. Probably because the special cells or the Factor loses its functionality with time.

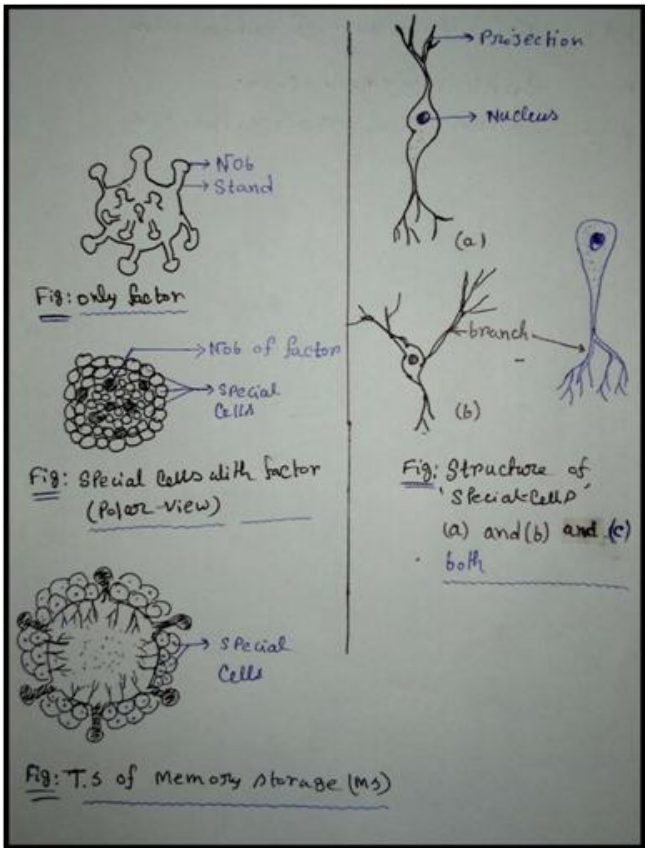

Figure 1

Author Profile

Subham Halder, 19 years old currently studying Zoology (Hons) "Dhruba Chand Halder College" under "Calcutta University". I am very passionate, hopeful and interested about biology. It is necessary or fact that until today I have written my two theories, which are given below with links -- 1. "The Chemical Theory of Hairs". https://biologyat1999.blogspot.com/2018/09/hypothesis-of-hair-regrowth-in-some.html 2." The difference between Biological Science and Biological Application". https://biologyat1999.blogspot.com/2018/12/classification-of-subjects-about-brain.html