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Memories: Storing and Sharing

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This past Friday, partly due to plan, partly due to opportunity and partly due to the approach of Father's Day, I took the day, and with my son and grandson, visited the gravesites of my grandson's great grandfather (my father), his great, great grandfather (my grandfather) and his great, great, great grandfather (my great grandfather). It is important to remember that my grandson has one father, two grandfathers, four great grandfathers, eight great, great grandfathers and sixteen great, great, great grandfathers, just as everyone else on the earth has. These facts are important as the memories we shared on this day are only a partial remembrance of my grandson's heritage. The day excluded 3 great grandfathers, seven great, great grandfathers and fifteen great, great, great grandfathers. We also visited the five homes or home sites which my mother and father occupied during their 64 years of marriage. We visited two of the three home sites in which my grandmother and grandfather resided.

The principle reason for this trip was to provide a physical connection for the memories which I wished to share with my grandson. Because I am a collage of my memories of the lives of each of these men, some by direct and others by indirect influence; I wanted my grandson to share the same memories. On this day, I learned that it is difficult to accurately share memories, for in the act of sharing, those memories are changed. I learned that the act of remembering itself creates new memories and that it is the new, shared experiences which will influence both of us, binding our lives together. I learned that the best for which we can hope is to connect my past memories with my grandson's future memories with our shared memories of such a day as this past Friday. I learned that my desire to create in my grandson the same mental images which motivate and guide me can bring more frustration than it does fulfillment.

One of the hopes of every generation is to create in the minds of those they love mental pictures of our past. The best of history is taught by such mental images. The "seeing" of events through the eyes and lives of others is the foundations of great history. One of the ironies of today's technological era when electronic capabilities make it possible for us to preserve voices and videos and "virtual history," is that more and more people are drawn to biography, history and "story telling." Why? It is so because the more advanced we become, the more we long for knowing who and why we are. Only the lives of others really tell us the answers to these questions.

Memory

Memory is one of the most important functions of the brain. That is why when we start to lose our memory, we begin to lose that which makes us unique and which makes who we are. Whether we realize it or not, memories define who we are. Without them, we would not know where we came from, what we have experienced, or who our families and friends are. Memories are unique to each person. While many people may witness or experience the same event, each person will remember it differently. This is why memory is considered part of a person's complex personality.

Many scientists know what memory is, but they still don't know exactly how it works. Memory is defined as the ability to acquire information, store it, and then retrieve it later. It affects every aspect of people's daily lives. People have memories about facts, such as their names and phone numbers and birth dates. They also have memories about past events, such as graduation from high school, getting married, or the death of a loved one. In addition, memories of certain skills, such as how to talk, walk, cook, or play a sport exist in abundance. Still other memories seem to be instinctive. For example, people remember how to sleep, breathe, and digest food. These are just a few examples of what memory can do and how it helps people learn and live.

Different Kinds of Memory

Types of memory fall into two categories, or systems, in the brain. One system deals with fact knowledge, such as names and dates; the other system deals with skills. While scientists know these systems are separate, they think that the systems share with one another. What scientists do not know is how much they share and how closely they are connected.

Fact knowledge is usually referred to as short-term memory. Short-term memories can become long-term if the circumstances are right. Again, scientists are still unclear as to exactly how this works; however, they think that short-term memories do not last long because new information enters the part of the brain that stores short-term memories and then drives out older memories. If a short-term memory passes into the long-term memory, it has more staying power. It lasts longer and can eventually become permanent. The longer a memory lasts, the stronger it is and the less likely it will be forgotten. This happens because short-term memories are fragile, while long-term memories are sturdy. Some scientists believe that long-term memories are stored permanently because of chemical changes in the brain.

Other scientists do not categorize memories in terms of length. They believe that the length of a memory depends on certain circumstances; however, they do not know which circumstances produce long-term memories and which produce short-term memories. One thing scientists agree on, however, is the fact that the brain seems to have an unlimited capacity to store memories. Scientists continue to study how people store and retrieve memories and why, if they have an unlimited capacity to remember information, people forget.

How People Remember and Why People Forget

When memories are stored in the brain, they cannot serve people unless they are retrieved. How do people retrieve memories? This usually happens when memories are challenged. For example, if someone asks a question, a person must attempt to retrieve information in order to answer the question. Sometimes the answer is easy; other times, a person takes time to answer it. The amount of time it takes to answer the question is connected to a person's awareness of what memories are stored. Sometimes a person is not aware at the time that he or she knows the answer, but later realizes that the information is there, ready to be retrieved. Sometimes, a smell or a sound can trigger a memory that a person did not know was there.

The Power of Memory

For unknown reasons, some people have a better ability to remember information than others. Ancient civilizations were able to maintain their history through an oral (spoken) tradition. Homer's epic poems *Iliad* and *Odyssey* were passed down through generations by word of mouth. It is believed that people's memories may have been stronger out of necessity. Because preliterate civilizations could not write, they were forced to remember things orally. When literacy (the ability to read or write) was developed, the need for oral stories diminished, which may explain why fewer people permanently store large amounts of information.

Some people have what is called eidetic imagery, or photographic memory, which enables them to take a picture of information and then use that picture to retrieve the information later. This picture is not just stored by sight. It can also be recorded through sound, taste, and smell. For example, a musician may be able to hear a song, and, without writing anything down, play back the song note for note. This type of memory is found more often in children than in adults. However, many people who have this ability as children often lose it as they grow older. Scientists do not know why some people have a photographic memory or why they eventually lose it.

There have been studies done, however, which reveal how too much memory can be harmful to a person. In the 1950s, a Russian man named Solomon V. Shereshevskii had the remarkable ability to remember an enormous amount of information. He was a reporter who was able to research and produce his stories without ever writing anything down. Shereshevskii eventually toured the world showing off his amazing ability to remember everything for an unlimited amount of time. Eventually, however, Shereshevskii's memory became an immense burden. Because he remembered so much information, he could not control his memories or when they surfaced. In the middle of conversations, he would be reminded of other events and facts until he could no longer concentrate on the conversation. He began to rant and rave like a madman. For the man who remembered everything, his greatest wish was to be able to forget.

Retrieving a memory involves finding the path that leads to the information and navigating that path. As more and more memories are stored from new experiences, those

paths can become intertwined, making it more difficult to find the way back. It can become particularly difficult when stored information has similar meaning because a person will have trouble making distinctions between memories. For example, if a person has seen hundreds of movies, it may become difficult for the person to recall the details of each one. The person may mix together certain parts or lines from different movies or may even confuse the actors involved in the movies.

Some people have trouble retrieving a memory, but eventually manage to do it. However, sometimes a memory cannot be retrieved at all. Does this mean that the information has disappeared forever? Scientists believe that as people search for a particular memory, such as the name of a childhood friend for example, they are actively retracing the path to find the original information that was stored years ago. If they make it there, the memory is retrieved. However, if people cannot seem to make it back on that path, they will never be able to find the memory. Sometimes, though, people will find their way by taking an alternate route. For example, if a person asks a friend a question, and the friend thinks he knows the answer but cannot seem to retrieve the information, he might say something like, "It's on the tip of my tongue!" Then, as he is doing something completely unrelated later in the day, the information might pop into his head. Scientists believe this happens because the brain has found a related item, which then helps the person find the desired information.

Ways to Improve Memory

Some scientists believe the capacity to store information long-term is connected to concentration. Short-term memories can easily become long-term if a person is willing to concentrate on the facts. Lynn Stern, author of *Improving Your Memory*, says that to make a long-term memory a person must "focus on it exclusively for a minimum of eight seconds." With training, anyone can improve the capacity to remember.

Experts also recommend the following to improve and maintain a good memory:

- Exercise on a regular basis. Exercise helps keep the blood flowing, which increases the amount of oxygen that reaches the brain. With more oxygen, the brain, and therefore the memory, stays sharp and focused.
- Manage stress. Stress can affect the body and the mind in negative ways. Emotional disorders such as depression can harm a person's ability to retrieve information.
- Stay organized. Organization creates order in a person's life. If a person is always losing her keys, her brain is being used to try to find them everyday instead of thinking about more important matters.
- Use visualization. Visualization means creating an image that corresponds with a fact or an event. If a person is trying to remember a list of groceries, it is helpful to associate a word, such as bread, with its corresponding image.
- Write it down. Writing things down on paper or on the computer helps people to remember because the act forces them to concentrate on the things they are writing. Concentration, as stated above, is one of the keys to a good memory.

Next week, we will continue thinking about memory and learning.