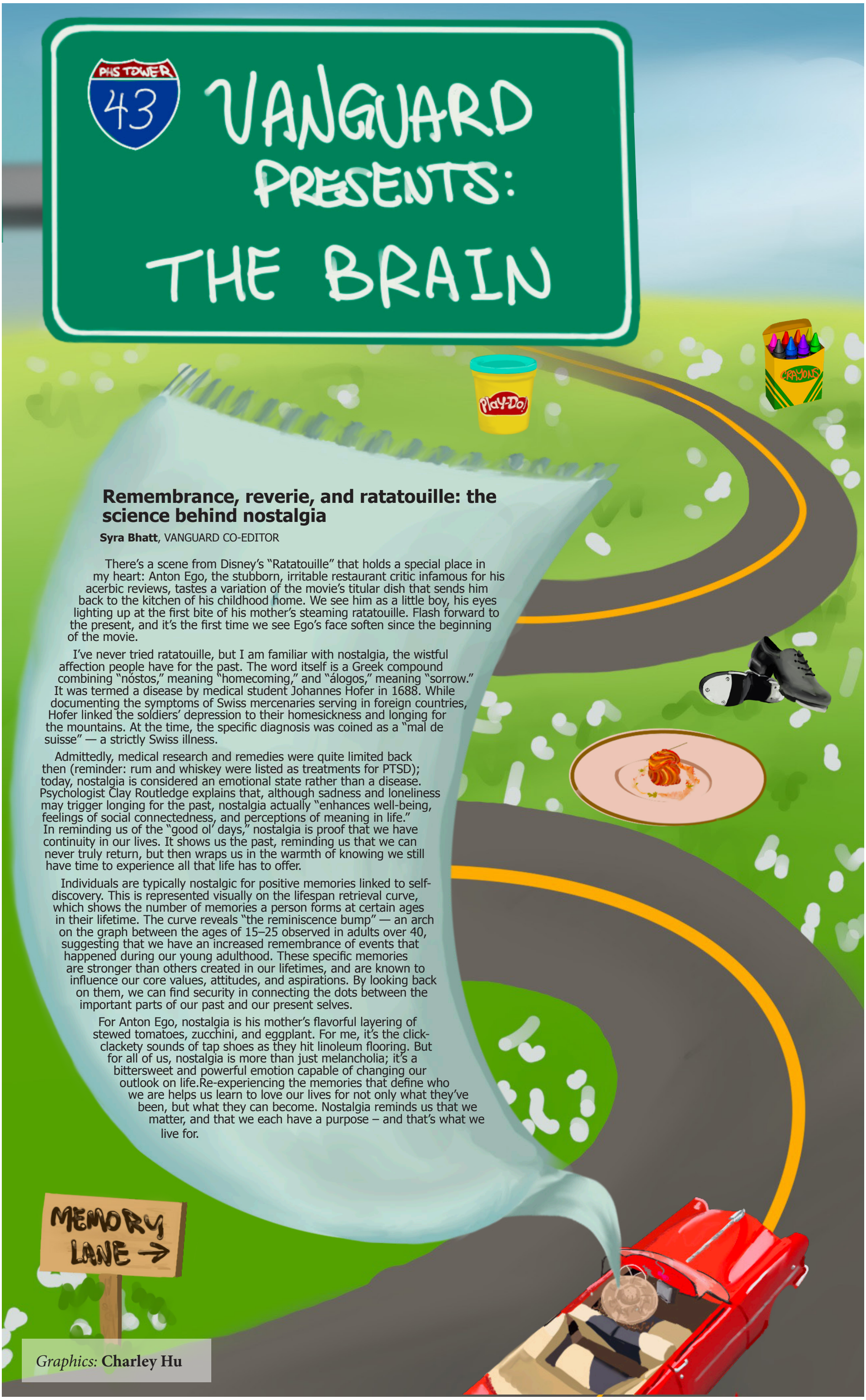


Remembrance, reverie, and ratatouille: the science behind nostalgia

Syra Bhatt, VANGUARD CO-EDITOR

There's a scene from Disney's "Ratatouille" that holds a special place in my heart: Anton Ego, the stubborn, irritable restaurant critic infamous for his acerbic reviews, tastes a variation of the movie's titular dish that sends him back to the kitchen of his childhood home. We see him as a little boy, his eyes lighting up at the first bite of his mother's steaming ratatouille. Flash forward to the present, and it's the first time we see Ego's face soften since the beginning of the movie.

I've never tried ratatouille, but I am familiar with nostalgia, the wistful affection people have for the past. The word itself is a Greek compound combining "nóstos," meaning "homecoming," and "álogos," meaning "sorrow." It was termed a disease by medical student Johannes Hofer in 1688. While documenting the symptoms of Swiss mercenaries serving in foreign countries, Hofer linked the soldiers' depression to their homesickness and longing for the mountains. At the time, the specific diagnosis was coined as a "mal de suisse" — a strictly Swiss illness.

Admittedly, medical research and remedies were quite limited back then (reminder: rum and whiskey were listed as treatments for PTSD); today, nostalgia is considered an emotional state rather than a disease. Psychologist Clay Routledge explains that, although sadness and loneliness may trigger longing for the past, nostalgia actually "enhances well-being, feelings of social connectedness, and perceptions of meaning in life." In reminding us of the "good ol' days," nostalgia is proof that we have continuity in our lives. It shows us the past, reminding us that we can never truly return, but then wraps us in the warmth of knowing we still have time to experience all that life has to offer.

Individuals are typically nostalgic for positive memories linked to self-discovery. This is represented visually on the lifespan retrieval curve, which shows the number of memories a person forms at certain ages in their lifetime. The curve reveals "the reminiscence bump" — an arch on the graph between the ages of 15–25 observed in adults over 40, suggesting that we have an increased remembrance of events that happened during our young adulthood. These specific memories are stronger than others created in our lifetimes, and are known to influence our core values, attitudes, and aspirations. By looking back on them, we can find security in connecting the dots between the important parts of our past and our present selves.

For Anton Ego, nostalgia is his mother's flavorful layering of stewed tomatoes, zucchini, and eggplant. For me, it's the click-clackety sounds of tap shoes as they hit linoleum flooring. But for all of us, nostalgia is more than just melancholia; it's a bittersweet and powerful emotion capable of changing our outlook on life.Re-experiencing the memories that define who we are helps us learn to love our lives for not only what they've been, but what they can become. Nostalgia reminds us that we matter, and that we each have a purpose – and that's what we live for.

Graphics: **Charley Hu**

THE ANATOMY

Aarna Dharmavarapu, CONTRIBUTING WRITER

Occipital Lobe

The occipital lobe is responsible for most visual perception: color, form or shape, and motion. Messages received from the retina of our eyes travel through the optic nerves and are decoded in the occipital lobe, where that information is formed into something our brain can perceive and use to carry out necessary functions. It's located at the very back of the skull, and has a groove dividing its left and right sides, similar to the other lobes.

Frontal Lobe

The frontal lobe is the largest lobe in the human brain. It is responsible for a variety of significant functions, including voluntary functions (like walking, writing, and speaking), expressive language, and higher-level thinking. Specifically, the frontal lobe is home to certain parts of the brain that manage thinking, self-control, muscle movements, and memory storage. As the name suggests, it is located at the forwardmost area of the brain. Additionally, the frontal lobe helps with reasoning, understanding of social situations, and learning and recalling information.

Cerebellum

The cerebellum controls voluntary movements like eye movement, speech, and posture. It's also responsible for muscle control, which involves balancing, coordination, and movement. Aside from controlling muscle movement, the cerebellum also plays a role in other cognitive functions, such as language processing, comprehension, and memory. It's located at the back of the head, just above the area where the spinal cord connects to the brain.

Parietal Lobe

The parietal lobe helps all the different parts of the brain work together. It is responsible for self-perception, learned movements, location awareness, and sensory integration, which translates our senses into things we can understand. The parietal lobe is located at the crown of the skull, the top part of your head.

Temporal Lobe

The temporal lobe helps us use our senses to understand and respond to the world around us. It's located just behind the frontal lobe, and below the parietal lobe. Some key areas of the temporal lobe are the amygdala, which determines emotions; the hippocampus, responsible for storing memories; and the fusiform gyrus, which is known to link visuals and memories.

FOOD FOR THOUGHT: BRAIN SUPERFOODS

Asya Morozov, SPORTS CO-EDITOR

Nuts and Seeds

Nuts and seeds are very nutrient-rich; they contain around three to six grams of protein per handful. Protein-rich foods aid neurotransmitters, which help the brain carry messages from one nerve cell to another. A study done by researchers from the Madrid Institute of Health in 2023 showed that consuming 60 grams of nuts and seeds may be linked to strengthening memory and blood flow in the brain. Although this is most helpful for people above 50 years old, who make up 19 percent of those who suffer from cognitive impairment, the consumption of nuts and subsequent building of proteins and cognitive capacity in the brain is beneficial for people of any age.

Dark Berries

Dark berries like blueberries and boysenberries are full of antioxidants and anthocyanins. Antioxidants stimulate blood and oxygen flow, particularly in the brain, which can increase focus and brainpower. They are an essential nutritional element of one's diet. Anthocyanins are small molecules that can cross the blood-brain barrier and induce helpful processes in the brain. They can prevent brain cells, which do not replenish themselves after loss, from aging, and can even provide protection against cancer. Both antioxidants and anthocyanins can also prevent free radical cells, which damage healthy cells in the body, from getting into the brain. This lets brain cells last longer and preserves cognitive potential later in life.

Avocados

Avocados contain many B-vitamins, which are crucial to brain health because of their involvement in homocysteine metabolism. Homocysteine is an amino acid that increases one's risk for heart disease, stroke, dementia, and neural tube issues. B-vitamins metabolize homocysteine, breaking it down and reducing its harm to the body. Eating avocado is beneficial in all stages of life, from building brain health and intelligence in babies to preventing cognitive degeneration in elderly people.

BRAIN TEASERS

Zoe Nuland, VANGUARD CO-EDITOR
Aritra Ray, MULTIMEDIA EDITOR
Chloe Zhao, OPINIONS CO-EDITOR

1)

2)

I fly by when you're having fun. I drag my feet when you're in Peer Group. Everyone is allotted the same amount of me, yet I am the most precious commodity.

3)

4)

Answers: 1: Dime a Dozen, 2: Time, 3: Chocolate, 4: Pac-Man

STUDY TIPS

Jieruei Chang, CONTRIBUTING WRITER

Sell All Your Clothes

Victor Hugo, the French novelist, was apparently a major procrastinator. He once promised to finish a book by April 1829 — but had not yet written a single word when the deadline rolled around. He managed to postpone the deadline to December 1830, but spent the time going out instead of writing. His publisher was not happy; in fact, he was so unhappy that he threatened to sue. So what did Hugo do? As the story goes, he sold all his clothes (except for his pajamas), essentially trapping himself inside his house. By January 1831, he had finished "The Hunchback of Notre-Dame."

I'm not saying that you should sell all your clothes when it's grind time on a research project or when you're panicking two days before the final exam. It might be more reasonable to lock yourself in your room, or shut off the notifications on your phone. You could change your work environment so you don't accidentally fall asleep while studying, or tape a list of clear and specific to-do items on the wall. But hey, if selling all his clothes worked for Victor Hugo, it might work for you too.

Explain Like I'm Five

Richard Feynman was a quantum physicist, but his eponymous study technique thankfully has no partial differential equations. It's built around the idea that to truly know something, you need to be able to teach it. After you're confident that you've internalized a concept, grab a friend with no prior knowledge and try to explain it to them. If you find yourself stumbling past certain concepts, that's probably where you should direct your attention.

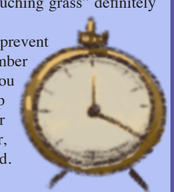
What I like about this technique is that it forces you to actually know the material, rather than just regurgitate the formulas. Sure, a volt is a joule per coulomb, but what does that actually mean? Can we find an analogy to make it more understandable? If we treat a coulomb of electric charge like a ball with mass rolling down a hill, then a volt is the height of that hill — which determines how many joules of potential energy the ball has at the top of that hill. If you really understand it, you should be able to explain it to a metaphorical five-year-old. My ball-rolling-downhill analogy helped me understand electricity, but it's not quite at five-year-old level yet. I suppose that means I've got more learning to do.

Get Some Exercise (And Some Sleep)

Know when to start studying, and know when to stop. Test scores do not necessarily have a positive correlation with the number of hours studied. Obviously, not studying at all is probably a bad idea, but the law of diminishing returns still applies: prolonged study sessions may not yield proportionate benefits. Too much studying can wear out your mind, meaning that it won't be at its best when you need it. Sometimes it's better to take a break than to keep cramming.

But what kinds of breaks are best? Exercise is one option. It releases endorphins, hormones which improve your mood and reduce stress by acting as natural pain relievers. I'm incredibly unathletic, but I like to go on bike rides, play table tennis (badly), or walk my dog. "Touching grass" definitely helps.

A good night's sleep is also important, not only to prevent irritability and fatigue, but also to make sure you remember what you studied. Your brain doesn't switch off when you sleep; spikes in oscillatory brain activity during sleep have been shown to be a key part of consolidating your memories. So before you panic and pull an all-nighter, ask yourself: is it really worth it? No. It's not. Go to bed.



Graphics: Katherine Chen and Charley Hu