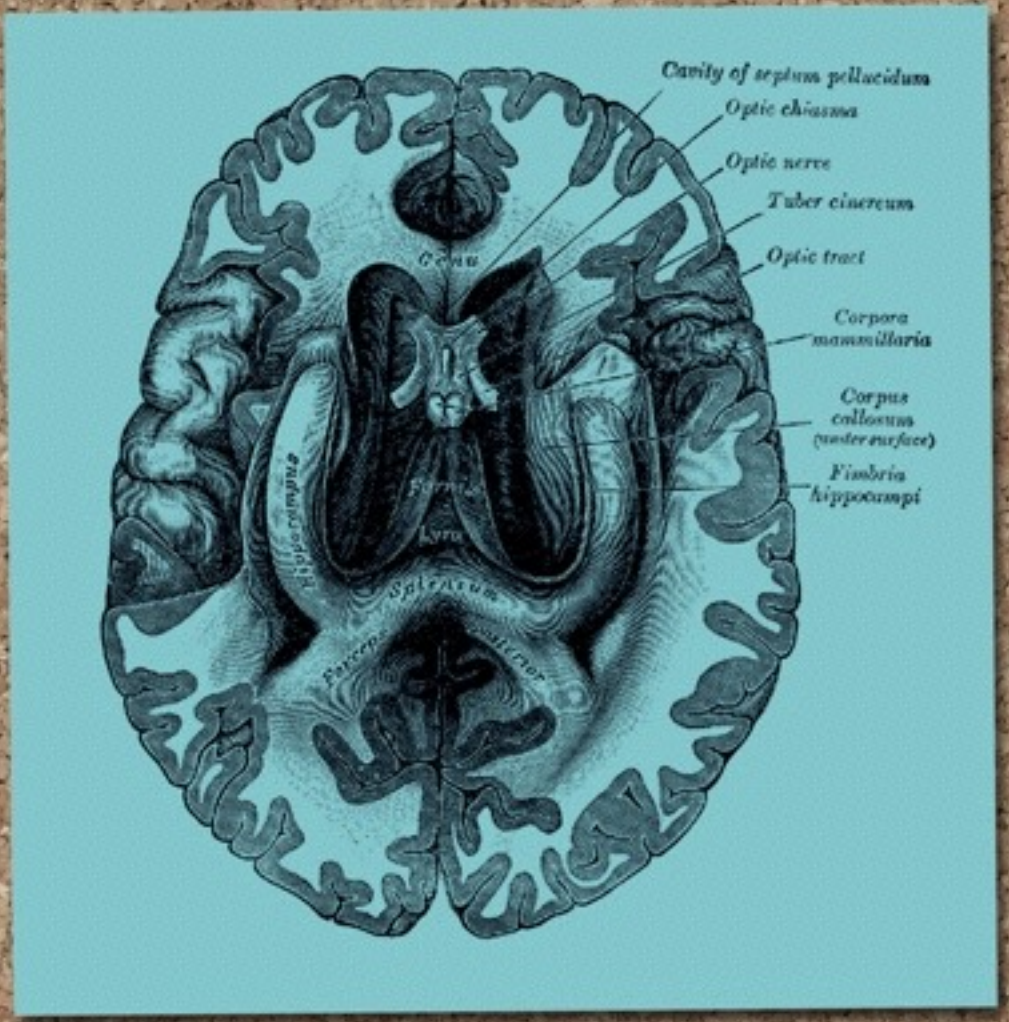

Last of Series of Lectures On

Psychology of Creativity

Neurophysiology of Creativity

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1: *Creative Dualities*
Mihaly Csikszentmihali

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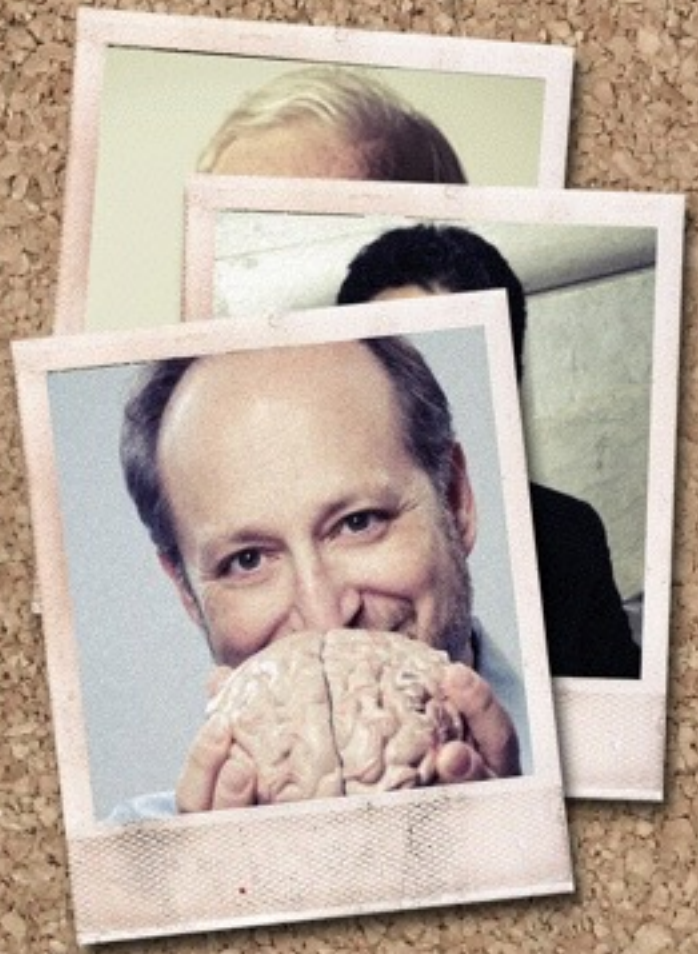

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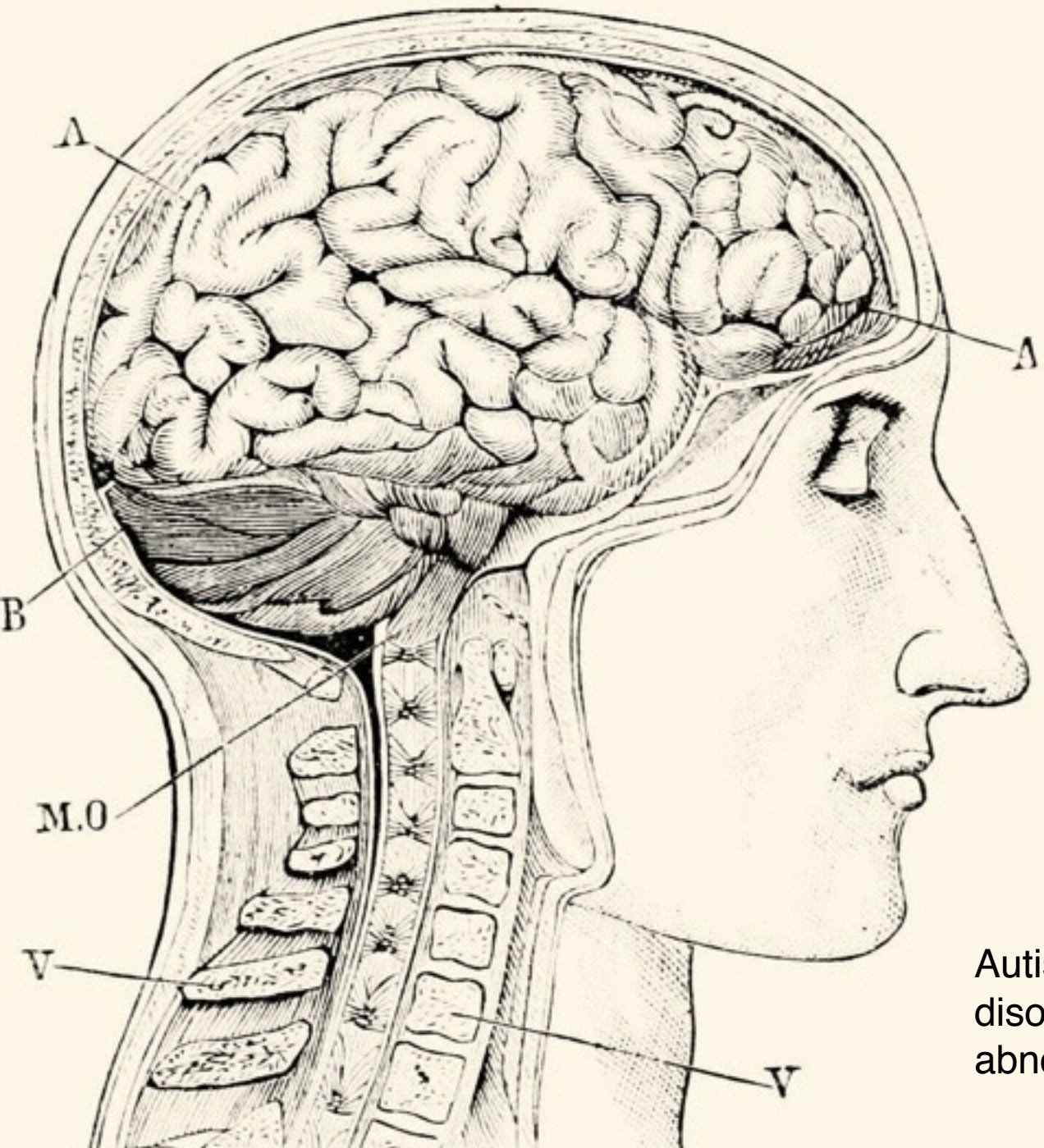
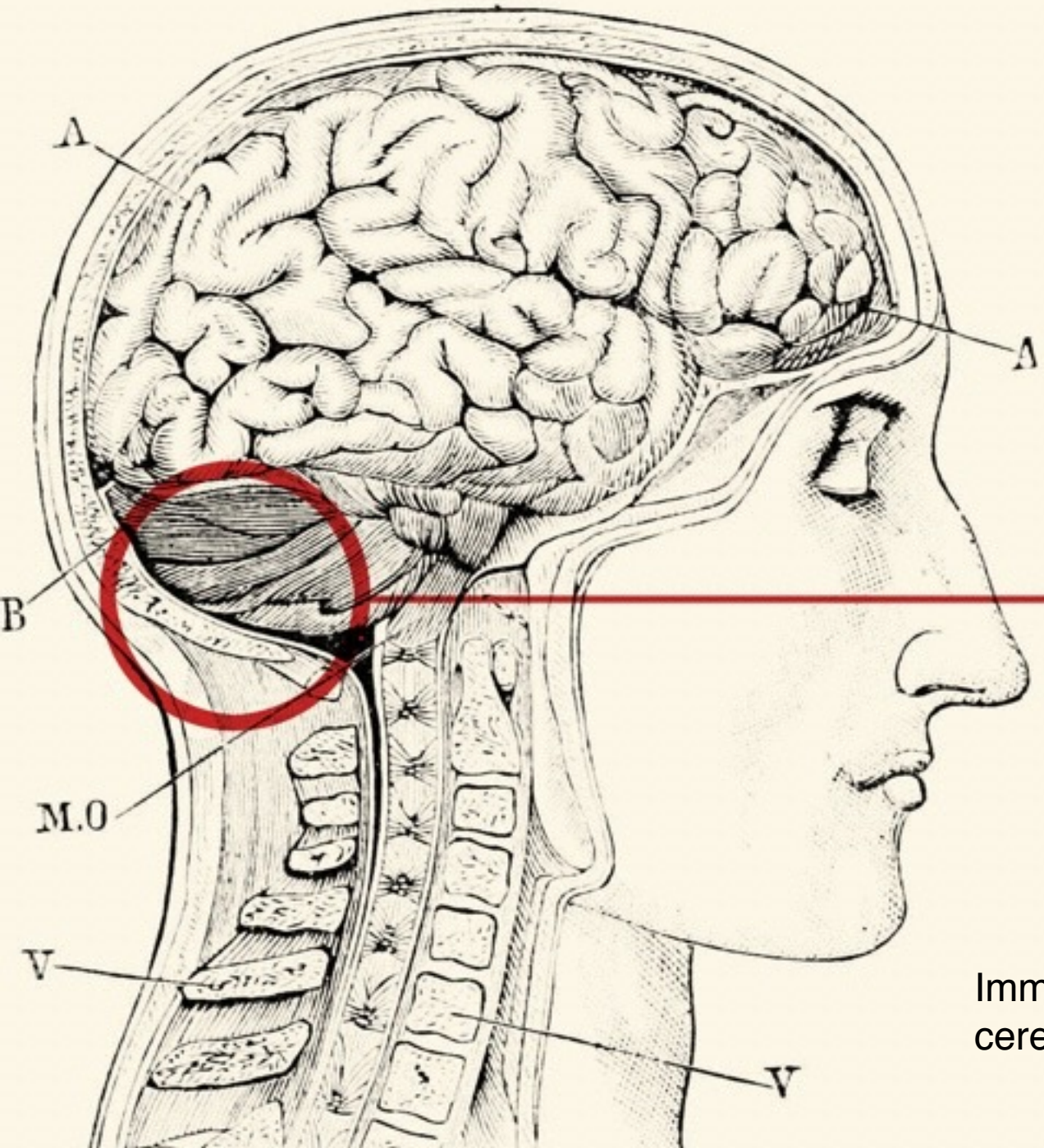
4: *Lessons from Temple Grandin*

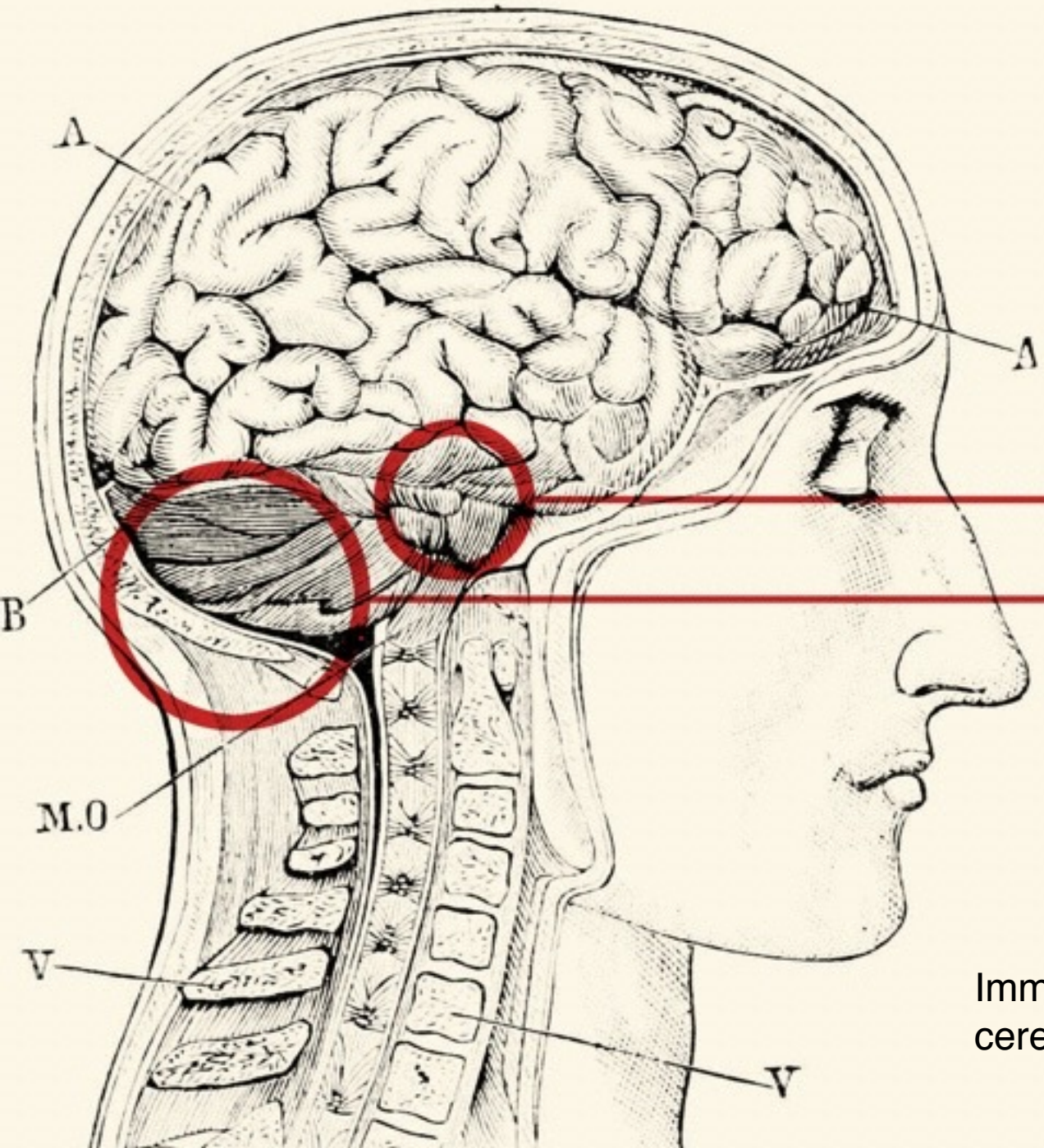


Autism is a genetic neurological disorder that reveals distinct abnormalities in the brain.



cerebellum

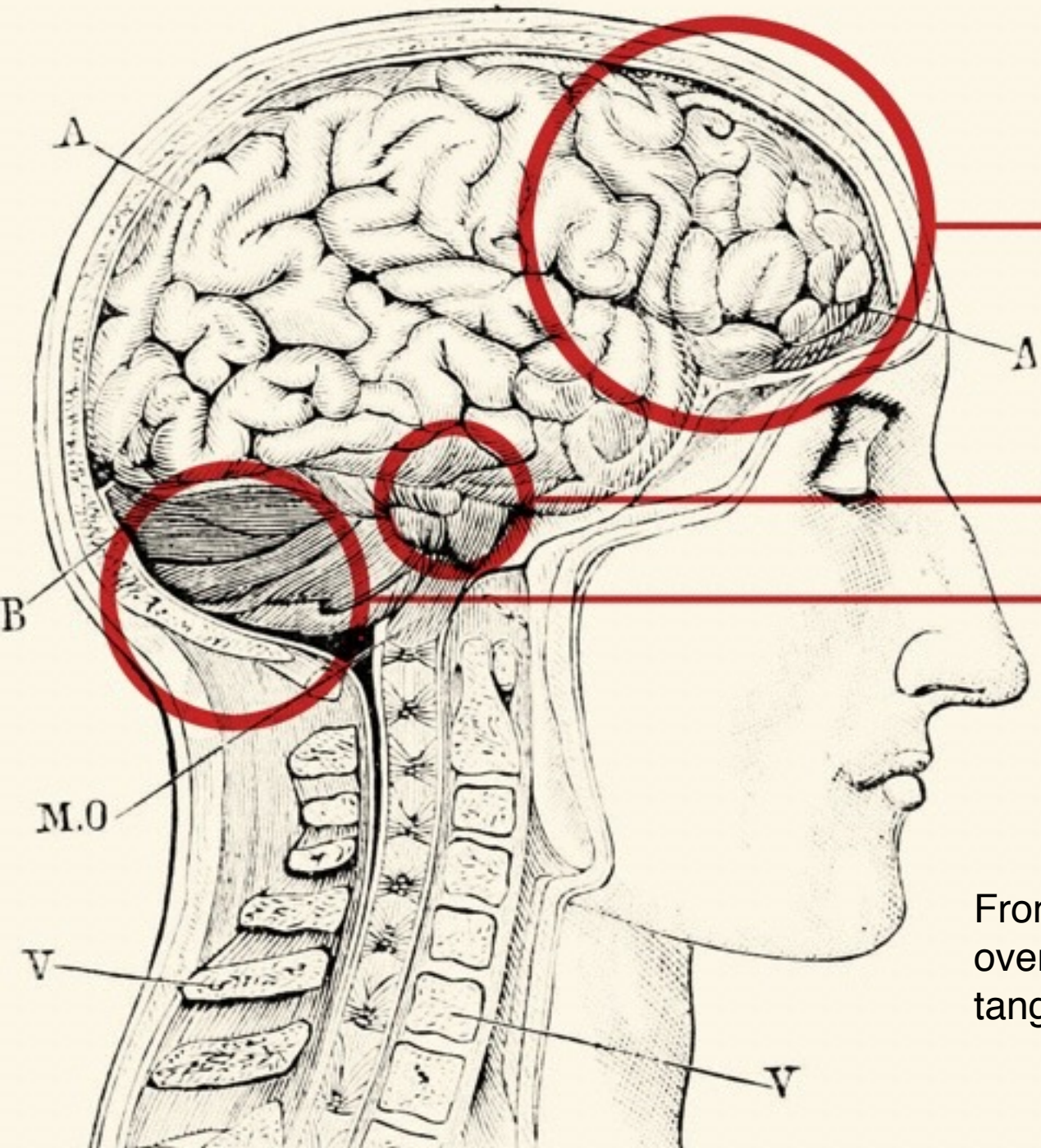
Immature development of
cerebellum and limbic system



limbic system

cerebellum

Immature development of
cerebellum and limbic system

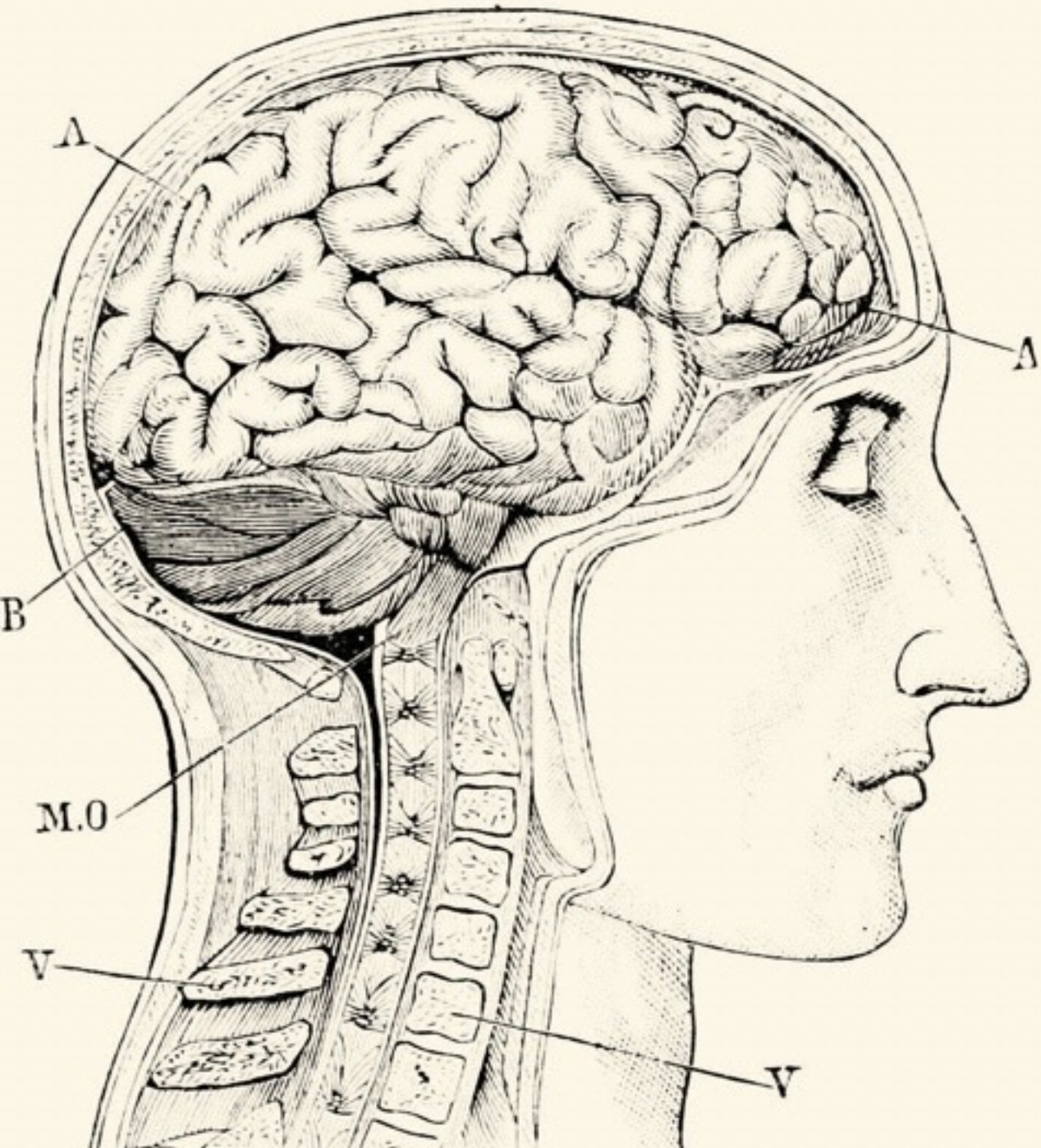


frontal cortex

limbic system

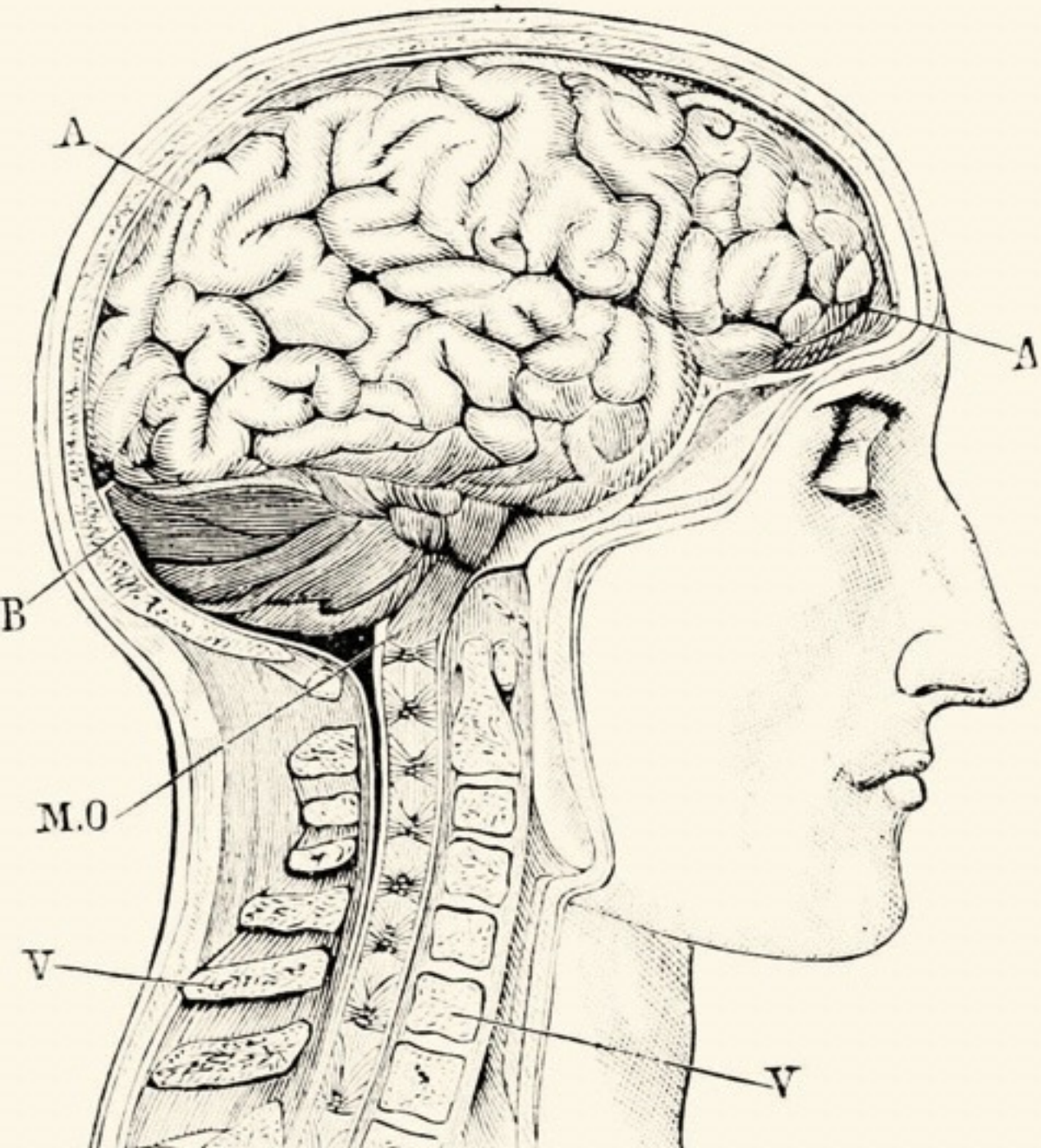
cerebellum

Frontal cortex has excessive overgrowth. (like a thicket of tangled computer cables.)

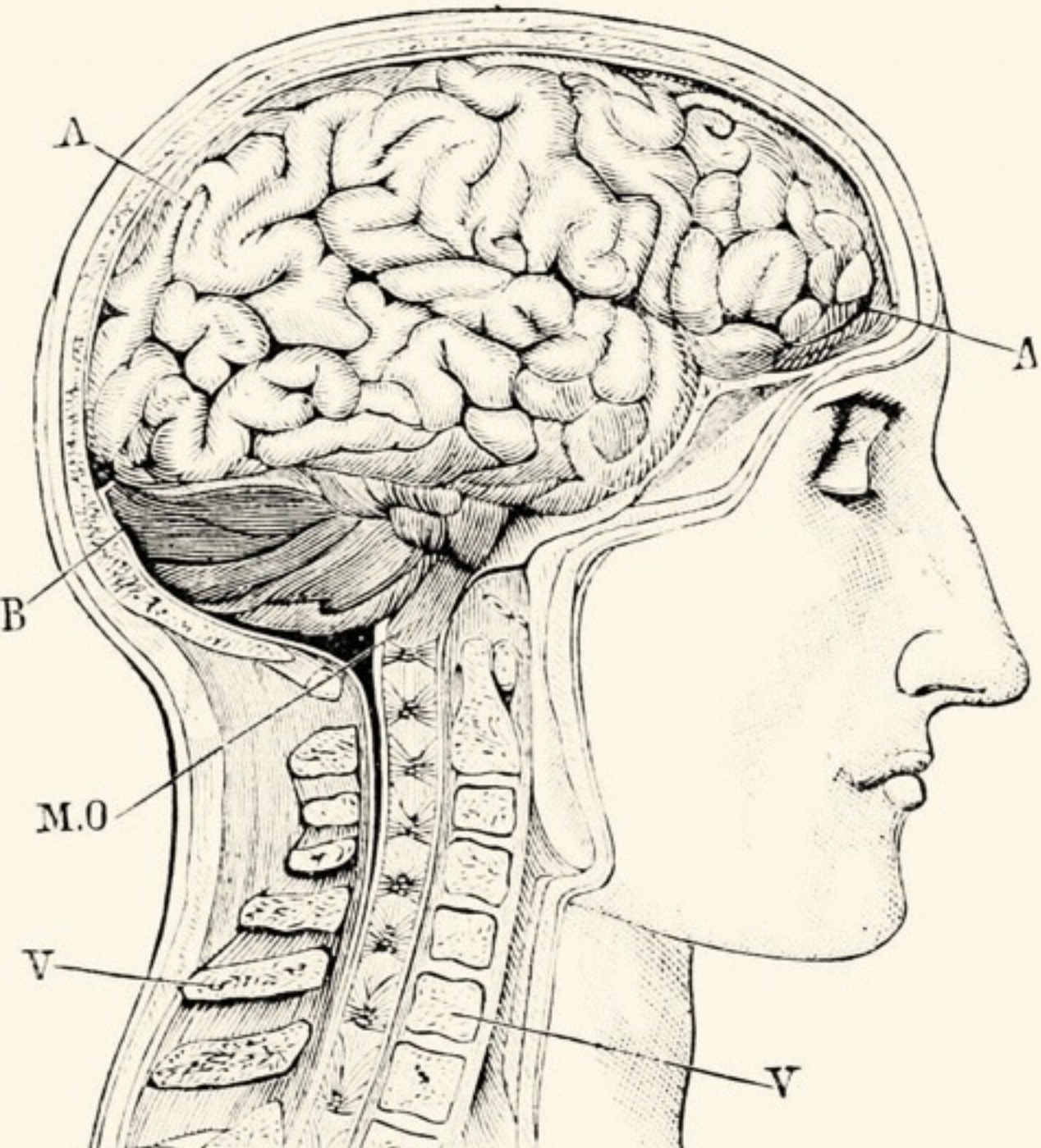


Local brain systems may have normal or even enhanced internal connections (savants).

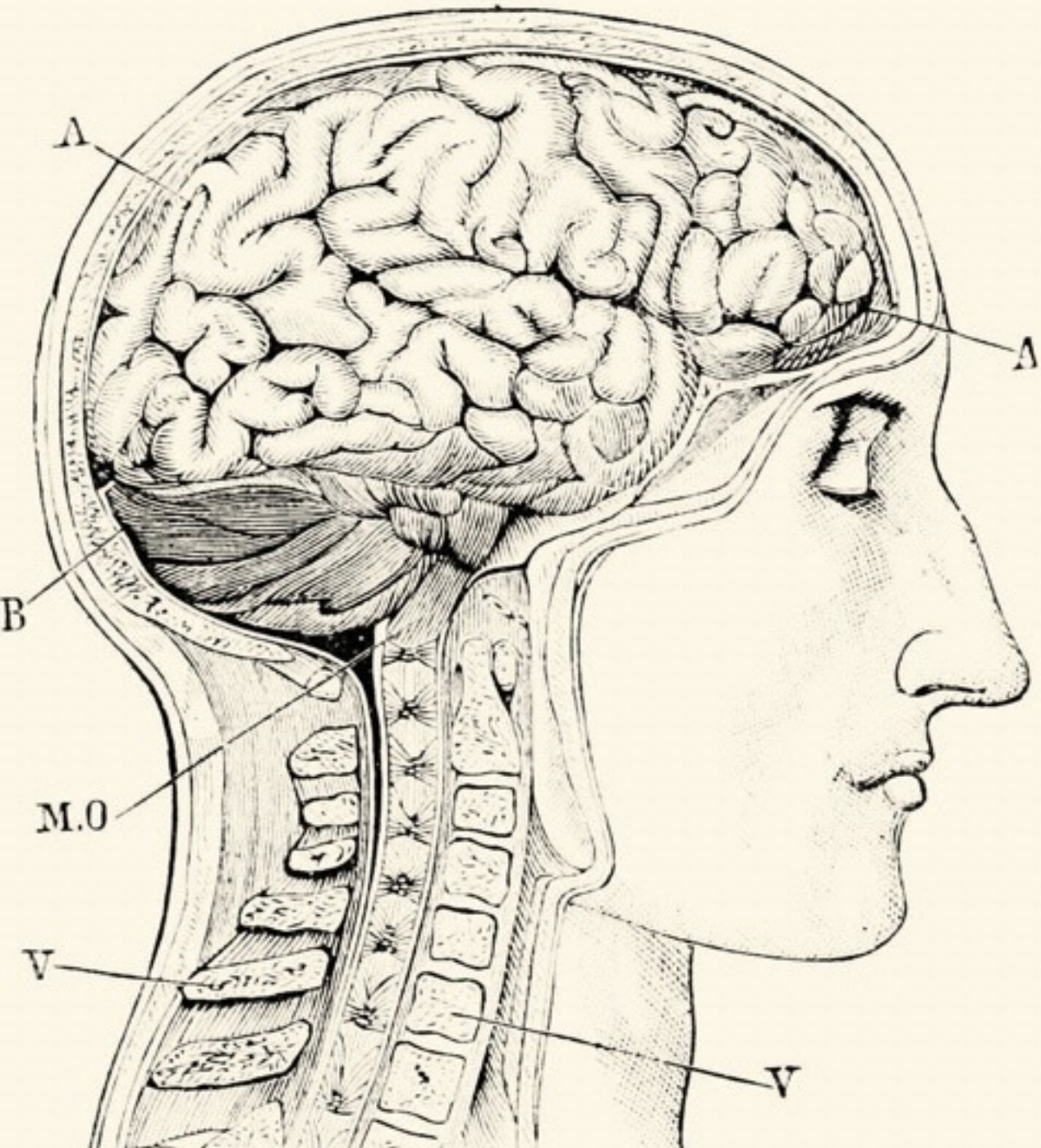
But the long-distance connections may be poor.



The Autistic brain is like an office building where some of the interdepartmental communication systems are not hooked up.



Variable symptoms probably depend on which “cables” get connected and which “cables” not.



In normal brains computer cables from all parts of the brain converge on the frontal cortex.

In the autistic brain some of these computer cables are not hooked up, resulting in weak conceptual thinking.

Autism spectrum disorder (ASD) is a range of complex neurodevelopment disorders, characterized by social impairments, communication difficulties, and restricted, repetitive, and stereotyped patterns of behavior. Autistic disorder, sometimes called autism or classical ASD, is the most severe form of ASD, while other conditions along the spectrum include a milder form known as Asperger syndrome, the rare condition called Rett syndrome, and childhood disintegrative disorder and pervasive developmental disorder not otherwise specified (usually referred to as PDD-NOS). Autistic children have to learn that objects have names and that words communicate. Although ASD varies significantly in character and severity, it occurs in all ethnic and socioeconomic groups and affects every age group. Experts estimate that three to six children out of every 1,000 will have ASD. Males are four times more likely to have ASD than females. The hallmark feature of ASD is impaired social interaction. They have problems with long strings of verbal information - have poor comprehension of spoken words. A child's primary caregivers are usually the first to

Autistic people have abnormalties in the part of the brain that processes complex sounds - poor ability to hear auditory detail.

Autism spectrum disorder (ASD) is

Temple's Autism

"I finally learned to speak at three and a half, after a year of intense speech therapy... My speech teacher helped me hear words by enunciating the consonants of words."

"I was seldom allowed to retreat into the soothing world of rocking or spinning objects."

Temple's Autism

"When I was little loud noises felt like a dentists' drill hitting a nerve."

"I don't experience the feelings attached to personal relationships."

"I don't have any social intuition... emotion does not guide my decisions; it is just pure computing."

Temple's Mentors

Temple's mother/nanny/therapist worked with her 20 hours a week, normally in 30 minute segments.

Mr. Carlock (her science teacher) became her most important mentor in high school.

Her aunt Breechen was another important mentor - always very tolerant and encouraged working with cattle.

Rewiring Temple's Brain

"Since my CEO's office (frontal cortex) had poor 'computer' connections, I had to use the graphic designers in my 'advertising department' to form concepts by associating visual details into categories."

"When I was a child, I originally categorized dogs from cats by size. That no longer worked when our neighbor got a small dachshund... when size no longer worked, I had to form a new category of nose type."

Rewiring Temple's Brain

"At the age of forty-seven, I have a vast databank of categories, but it has taken me years to build up my library of experiences and learn how to behave in an appropriate manner. I did not know until very recently that most people rely heavily on emotional cues."

Thinking in Pictures

“I think in pictures. Words are like a second language to me. I translate both spoken words and written words into full-color movies, complete with sounds, which run like a VCR-tape in my head.”

“Being autistic, I didn’t naturally assimilate information that most people take for granted. When I recall something I have learned, I replay the video in my imagination... I can run these images over and over and study them to solve design problems.”

Thinking in Pictures

“My thinking pattern always starts with specifics and works toward generalization in an associational and non-specific way, as if I were attempting to figure out what the picture on a jigsaw puzzle is when only one third of the puzzle is completed.

Temple's Creative Problem Solving

"I use visual thinking skills to simulate what an animal would see and hear in a given situation. I place myself inside its body and imagine what it experiences."

"Cattle have a very wide, panoramic visual field, because they are prey species, ever wary and watchful for sources of danger."

"Similarly, some people with autism are like fearful animals in a world full of dangerous predators."

Temple's Creative Problem Solving

"It's unlikely that anyone but me would have noticed that the sounds that upset cattle are the same kinds of sounds that are unbearable to many autistic children."

"The reaction of cattle to something that appears out of place may be similar to the reaction of autistic children to small discrepancies in the environment."

Temple's Creative Problem Solving

"I have hyperactive senses and fear responses that may be more like those of a prey-species animal than of most humans."

"A great deal of my success in working with animals comes from the simple fact that I see all kinds of connections between their behavior and certain autistic behaviors."

Temple Grandin

Values
Vision
Design
Invention
Independent Thinking
Confidence
Rebellion
Optimism
Hybridization
Mentorship
Competition
Craft
Extrapolation