

Impact Statement

Yiting Wang, Grade 11

The Piece She Found, 2026

Acrylic, colored pencil, marker, pen, collage on paper, 12 x 9 inches

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Unsung Hero: Dr. Patricia Goldman-Rakic

The Unsung Hero I chose is Patricia Goldman-Rakic (1937–2003), an American scientist who had an important influence in the field of neuroscience. She studied the prefrontal cortex of the brain and how this area participates in working memory and complex cognitive activities. During her research, people already knew that the prefrontal cortex was related to advanced cognitive behavior, but there were still many unknowns about how it allowed us to remember, think, and deal with information that was no longer in front of us. Goldman-Rakic helped the scientific community confirm the important role of the dorsolateral prefrontal cortex in spatial working memory by studying the behavior, brain structure, and neural activity of primates. She then studied the continuous activity of prefrontal neurons during working memory, providing an important neuroscience basis for understanding why we can still keep something in our minds when it has disappeared from our eyes. She also studied the relationship between dopamine and prefrontal function and used methods such as anatomy, physiology, behavior, and pharmacology to study cognitive function. Her work promoted the understanding of the prefrontal cortex and working memory and influenced the later development of cognitive neuroscience.

I think the importance of Goldman-Rakic is not only that she discovered the function of a certain brain area, but also that she allowed scientists to explore a problem that everyone uses every day but rarely thinks about: How do our thoughts exist in the brain? We can still remember an object after it has disappeared from sight. We can temporarily keep a number, a face, or a direction and use this information to complete the next action. Behind these seemingly ordinary abilities are complex neural activities. Goldman-Rakic's research helped scientists further understand these processes. She did not solve all the problems about human thought, but she made the once-vague unknown clearer and opened the way for later people to continue exploring. For me, this is what she deserves to be remembered for most as an "Unsung Hero."

My work is called *The Light She Left Behind*. I did not choose to draw a scientist standing next to a huge human brain because I hope the work expresses not only "she studied the brain,"

but also what she brought to science. My core concept is “illuminating the unknown.” I imagine the unknown as a dark space. In the dark, many neural structures related to thinking and memory cannot be seen. Goldman-Rakic appears in this space, and the light in her hand does not shine on herself, but in front of her. As the light spreads, neurons, neural networks, and prefrontal structures hidden in the dark gradually appear.

In my work, light not only represents knowledge, but also represents the action of exploring the unknown. Darkness does not mean that nothing exists, but that we do not know enough about it. Therefore, I hope the light in the picture is not a sudden “answer,” but a gradually expanding discovery process. Goldman-Rakic’s work is like lighting a light in a field that was difficult to understand in the past. She allowed scientists to observe and study the prefrontal cortex and working memory more clearly, and the area she illuminated continued to extend into later studies. Therefore, I will let the light eventually extend into the distance instead of staying around her. This means that scientific discovery does not end with one person’s research; one person’s discovery can be the starting point for another person.

I hope that what this work brings to the audience is not only recognition of the name Patricia Goldman-Rakic, but also a chance to rethink what they take for granted every day. We remember things, keep disappearing images in our minds, and think about what to do next. These behaviors seem so natural that we rarely ask why they can happen. Goldman-Rakic’s research brought humanity closer to the answers to these questions.

For me, the light in *The Light She Left Behind* does not mean that she illuminated the whole world, but that she illuminated an unknown direction. The real influence she left may not be a final answer, but the ability for later people to move forward along the path she illuminated.

Through this work, I hope the audience can see that the influence of an “Unsung Hero” does not necessarily come from a sensational moment; sometimes, a person simply opens a door that could not be opened before, and many people later walk through that door, continuing the impact of her work.