



The Eye of Neurology: From the *Iconographie Photographique de la Salpêtrière* to Artificial Intelligence

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What could be more immediate than visual perception? We see something before us—here and now. Perception is nourished by the present; it lives in the instant. And yet, this immediacy is deceptive. Culture shapes biology, and what we perceive is influenced by what we *know* we perceive. As Charcot famously said, *to know is to recognize*. Our vision is not purely anchored in the present—it is filtered through the lens of the past.

This historical anchoring of perception becomes evident when we consider how our attention is directed. If today we attend to certain details and see in a particular way, it is because those who came before us taught us to look that way.

A striking example of this is the *Iconographie Photographique de la Salpêtrière*, first published in 1876 (Bourneville and Regnard 1876). As we celebrate its 150th anniversary, this landmark work reminds us that neurology is, above all, a discipline of vision. It also illustrates how our way of observing the signs of disease has been shaped over time by neurologists who laid the foundations of a diagnostic method rooted in pattern recognition—a process that closely resembles *Gestalt* reasoning.

Here, the transition from visual observation to cognitive interpretation becomes central. According to the *Gestalt* principle in psychophysiology, the whole is greater than the sum of its parts. What emerges is not simply given, but constructed through the dynamic interaction of elements.

This principle finds a powerful echo in the evolution of neurological method. Neurology—and medicine more broadly—has systematized this cognitive process, translating it into a structured approach. This method represents one of the highest expressions of human intelligence: the ability to disentangle the complexity of disease, to recognize diverse patterns of clinical presentation, and to transform chaos into order.

Even more fascinating is the circularity of this process: it is the brain itself that informs the way we study the brain. This recursive relationship underscores the depth of neurological inquiry.



At the heart of this method lies a hierarchical organization of information. By assigning different weights to each element, clinicians move from initial input to diagnostic output. The goal is to uncover hidden patterns beneath the dynamic and mutable surface of clinical phenomena. This is, in essence, the logic underpinning the correlation between signs, symptoms, and their neurological localization—the anatomo-clinical method systematized by Charcot.

One of Charcot's most renowned student, Sigmund Freud, captured this approach well. In describing his mentor's method, Freud emphasized Charcot's extraordinary ability to synthesize disparate, sometimes contradictory data, organizing it and assigning relative value to each piece until the initial chaos became structured. It is from this Gestalt-like reasoning that contemporary neurology emerges—an approach that also incorporates Bayesian logic, where conditional probabilities interact and evolve based on the quantity and nature of available information.

This brings us to a broader epistemological insight: neurology is founded on a method that enables the ordering of multiplicity and apparent chaos, allowing clinicians to identify meaningful aggregates—nodes around which understanding coalesces.

Today, this same logic is mirrored in the development of artificial intelligence. Facial recognition and image analysis systems powered by AI emulate the Gestalt-like mechanisms inherent in the human mind. Increasingly, such tools are being applied in neurology—not only in research but also in clinical practice. Examples include the automated analysis of neuroimaging, the detection of subtle clinical signs such as mild facial asymmetries or papilloedema, the interpretation of EEG recordings, and the recognition of movement disorder patterns (Auger et al. 2020; Sollee et al. 2022; Shi et al. 2024). Their remarkable performance—continuously advancing—underscores the AI potential of replicating human cognitive strategies.

But this also raises profound ethical, social, and epistemological questions. These are not peripheral concerns. They are urgent and central. As we move forward with technologies that mirror our cognitive processes, we must develop robust and effective responses. The stakes are high: these tools function in ways strikingly similar to us, and precisely because of that, their consequences remain largely unknown—and potentially unsettling.

I believe there is little doubt that we have entered—borrowing an expression from Michel Foucault (1926–1984), whose centenary is being commemorated this year, in what seems to be a year rich in anniversaries—into a new episteme (Foucault 1966). The large-scale adoption of artificial intelligence has brought about a radical and structural transformation in the horizon of thought and language within which we exist, with consequences that are unpredictable not only on the social, economic, and professional levels, but also in the very way we will conceive of the nature of the human being. Artificial intelligence, integrated into the transhumanist project, may well lead us toward a post-human reality—a prospect that is anything but remote (Ferry 2025).

In Stanley Kubrick's *2001: A Space Odyssey*, the artificial intelligence HAL 9000 is portrayed as a glowing red eye—an iconic symbol of machine vision and cognitive control. HAL's design evokes the idea that *to see is to know*, and reminds us how closely artificial systems can resemble human perception in their functioning.

Let us hope that this headlong race toward (or behind) technological progress, while strengthening the eye of artificial intelligence, does not cloud our own vision—nor obscure our clinical gaze—making us more blind.



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