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Jonah Lehrer, Annals of Science, "The Eureka Hunt," *The New Yorker*, July 28, 2008, p. 40

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ABSTRACT: ANNALS OF SCIENCE about insight. On August 5, 1949, a firefighter named Wag Dodge survived an out-of-control fire in the Mann Gulch, in Montana. In a moment of desperate insight, he devised an escape plan by igniting the ground in front of him and laying down on the smoldering embers, inhaling the thin layer of oxygen clinging to the ground. There is something inherently mysterious about moments of insight. Dodge couldn't explain where his idea came from. Stories like Dodge's share a few essential features, which psychologists and neuroscientists use to define "the insight experience." Mark Jung-Beeman, a cognitive neuroscientist at Northwestern University, has spent the past fifteen years trying to figure out what happens inside the brain when people have an insight. Jung-Beeman became interested in the nature of insight in the early nineteen-nineties, while researching the right hemisphere of the brain. Mentions Jonathan Schooler. Jung-Beeman decided to compare word puzzles—or Compound Remote Associate Problems (C.R.A. Problems)—solved. He teamed up with John Kounios, a psychologist at Drexler University, and they combined fMRI and EEG (electroencephalography) testing to scan people's brains while they solved the puzzles. The resulting studies, published in 2004 and 2006, found that people who solved puzzles with insight activated a specific subset of cortical areas. Although the answer seemed to appear out of nowhere, the mind was carefully preparing itself for the breakthrough. The suddenness of the insight is preceded by a burst of brain activity. A small fold of tissue on the surface of the right hemisphere, the anterior superior temporal gyrus (aSTG), becomes unusually active in the second before the insight. Once the brain is sufficiently focused on the problem, the cortex needs to relax, to seek out the more remote association in the right hemisphere that will provide the insight. As Kounios sees it, the insight process is an act of cognitive deliberation transformed by accidental, serendipitous connections. Mentions Joy Bhattacharya and Henri Poincaré. The brain area responsible for recognizing insight is the prefrontal cortex. Earl Miller, a neuroscientist at M.I.T., spent years studying the prefrontal cortex. He was eventually able to show that it wasn't simply an aggregator of information, but rather it was more like a conductor, waving its baton and directing the players. In 2001, Miller and Princeton neuroscientist Jonathan Cohen published an influential paper laying out their theory of how the prefrontal cortex controls the rest of the brain. It remains unclear how simple cells recognize what the conscious mind cannot. An insight is just a fleeting glimpse of the brain's huge store of unknown knowledge.

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