

The Sensed-Presence Effect

How the brain produces the sense of someone present when no one is there

BY MICHAEL SHERMER



In the 1922 poem *The Waste Land*, T. S. Eliot writes, cryptically: *Who is the third who always walks beside you?/When I count, there are only you and I together /But when I look ahead up the white road/There is always another one walking beside you.*

2 In his footnotes to this verse, Eliot explained that the lines “were stimulated by the account of one of the Antarctic expeditions [Ernest Shackleton’s] ... that the party of explorers, at the extremity of their strength, had the constant delusion that there was one more member than could actually be counted.”

3 Third man, angel, alien or deity—all are sensed presences, so I call this the sensed-presence effect. In his gripping book, *The Third Man Factor* (Penguin, 2009), John Geiger documents the

effect in mountain climbers, solo sailors and ultraendurance athletes. He lists conditions associated with it: monotony, darkness, barren landscapes, isolation, cold, injury, dehydration, hunger, fatigue and fear. I would add sleep deprivation; I have repeatedly experienced its effects and witnessed it in others during the 3,000-mile nonstop transcontinental bicycle Race Across America. Four-time winner Jure Robic, a Slovenian soldier, recounted to the *New York Times* that during one race he engaged in combat a gaggle of mailboxes he was convinced were enemy troops; another year he

found himself being chased by a “howling band” of black-bearded horsemen: “Mujahedeen, shooting at me. So I ride faster.”

4 Sleep deprivation also accounts for Charles A. Lindbergh’s sensed presence during his transatlantic flight to Paris: “The fuselage behind me becomes filled with ghostly presences—vaguely outlined forms, transparent, moving, riding weightless with me in the plane ... conversing and advising on my flight, discussing problems of my navigation, reassuring me, giving me messages of importance unattainable in ordinary life.”

5 Whatever the immediate cause of the sensed-presence effect, the deeper cause is to be found in the brain. I suggest four explanations: 1) The hallucination may be an extension of the normal sensed presence we experience of real people around us, perhaps triggered by isolation. 2) During oxygen deprivation, sleep deprivation or exhaustion, the rational cortical control over emo-

tions shuts down, as in the fight-or-flight response, enabling inner voices and imaginary companions to arise. 3) The body schema, or our physical sense of self—believed to be located primarily in the temporal lobe of the left hemisphere—is the image of the body that the brain has constructed. If for any reason your brain is tricked into thinking that there is another you, it constructs a plausible explanation that this other you is actually another person—a sensed presence—nearby. 4) The mind schema, or our psychological sense of self, coordinates the many independent neural networks that simultaneously work away at problems in daily living so that we feel like a single mind.

6 Neuroscientist Michael S. Gazzaniga of the University of California, Santa Barbara, calls this the left-hemisphere interpreter—the brain’s storyteller that pulls together countless inputs

into a meaningful narrative story. In an experiment with a “split-brain” patient (whose brain hemispheres were surgically disconnected), Gazzaniga presented the word “walk” only to the right hemisphere. The patient got up and began walking. When he was asked why, his left-hemisphere interpreter made up a story to explain this behavior: “I wanted to go get a Coke.”

7 My brother-in-law Fred Ziel, who has twice climbed Mount Everest, tells me that both times he experienced a sensed presence: first when he was frostbitten and without oxygen at the

limit of physical effort above the Hillary Step, and second on Everest’s north ridge after he collapsed from dehydration and hypoxia at 26,000 feet. Both times he was alone and feeling desirous of company. Tellingly, when I asked his opinion as a medical doctor on possible hemispheric differences to account for such phenomena, Fred noted, “Both times the sense was on my right side, perhaps related to my being left-handed.” The sensed presence may be the left-hemisphere interpreter’s explanation for right-hemisphere anomalies.

8 Whatever its cause, the fact that it happens under so many different conditions tells us that the presence is inside the head and not outside the body. ■

Michael Shermer is publisher of *Skeptic* magazine (www.skeptic.com) and author of *How We Believe*.



Expert Systems Fight Poverty

Appropriate information and communications technologies, combined with community involvement, can save lives

BY JEFFREY D. SACHS



In his wonderful new book *The Checklist Manifesto* (Metropolitan Books, 2009), surgeon and author Atul Gawande explains how successful surgery depends on the complex interactions of surgeons, nurses, anesthetists and other specialists, who must possess not only highly specialized skills

but also the ability to work as a team in the face of rapidly arising challenges. The same applies to an airliner's pilot, co-pilot and crew. Special tools such as checklists, decision trees and artificial intelligence built into instrumentation are key.

2) Information technology empowers complex group processes in striking new ways, but the breakthroughs are especially exciting in very low income settings. There mobile telephony and wireless broadband are ending the grinding isolation of rural communities and enabling workers—even those with fairly rudimentary training—to interconnect more successfully and to tap into expert systems and artificial intelligence.

3) On a recent trip to Africa, I saw two simple but powerful examples of lifesaving protocols enabled by mobile phones. In the Ghanaian village of Bonsaaso, part of the Millennium Village Project, a simple phone-based system is lowering maternal mortality during childbirth. Community health workers (CHWs) with basic training, a skilled midwife, an ambulance driver and a receiving hospital use mobile phones to coordinate as a team. Ever more deliveries now take place in the clinic rather than at home; in the event of complications, the mother is whisked to a receiving hospital about 10 miles away. Mobile phone connectivity among community, clinic, ambulance and hospital makes possible a once unthinkable degree of coordination.

4) In the Kenyan village of Sauri, also part of the Millennium Village Project, CHWs are pioneering the application of expert systems for malaria control. In the past, suspected malaria patients had to walk or be carried to a clinic, often miles away, have a blood smear read under a microscope by a trained technician and, if positive, receive a prescription. With clinics few and far between and with trained technicians and microscopes even scarcer, untreated, lethal malaria ran rampant.

5) In the new approach, CHWs visit households on the lookout for fevers that may signify malaria. They carry rapid diagnostic tests that examine a drop of blood for the presence of the malaria pathogen. Then they send an SMS (short service message) text

with the patient's ID and the test results. Seconds later an automated text response informs the health worker of the proper course of treatment, if any. The system can also send reminders about any follow-up treatments or scheduled clinic visits for the patient. The new system of malaria control includes insecticide-treated bed nets made to last for five years and a new generation of combination drugs based on a traditional Chinese herbal treatment, artemisinin.

6) This full set of tools constitutes a remarkably effective malaria-control system. Already a partial deployment of the system is reducing the malaria burden dramatically in several parts of Africa. Modest international financial support could greatly accelerate the deployment of the full system, and if it were scaled up throughout Africa, hundreds of thousands of lives could be saved annually at around \$7 per person a year in the malaria-transmission zones.

7) India is similarly scaling up rural public health by deploying advanced information technologies, CHWs and improved management systems. In the past, public health data became available only after rounds of surveys three years apart, and those results were used mainly for research purposes. Now key data will increasingly be available after only hours or days and will be used for real-time health system management.

8) Checklists, teamwork and telecommunications-based expert systems can revolutionize rural farm yields, disease control, business networks, rural finance, education systems, and much more. Soon farmers will be able to enter local data for advice on specific soil needs, timing on the planting season, drought and rainfall forecasts, market prices and logistics. Mobile-phone-based banking and payments services will penetrate even the most remote regions. With development aid directed toward these new systems, the world's capacity to reduce poverty, hunger and illness—and the violence that accompanies them—will become more powerful and effective than ever.



Jeffrey D. Sachs is director of the Earth Institute at Columbia University (www.earth.columbia.edu).



An extended version of this essay is available at www.ScientificAmerican.com/apr2010