

The Brain's Dark Energy



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I have brazenly stolen my title directly from the cover of the March issue of Scientific American. This is fair because the author of that article, Marcus Raichle, admittedly stole it from the field of physical cosmology. It has become clear in the last decade that the universe is expanding, *at an accelerating rate*, and that it will probably continue to expand forever. Dark energy refers to whatever unknown and invisible force is driving the acceleration. Whatever dark energy is, it is everywhere in space and it is always pushing.

The brain's dark energy is like that, except that it is always thinking rather than pushing. In modern neuroscience the physical process of thinking is measured as metabolic activity in various regions of the brain, as observed by fMRI brain scanners. You have seen the colorful illustrations of your brain lighting up like a Christmas tree when you listen to Chopin, think of the word "pencil," ponder philosophy, wiggle your toes, or watch a pornographic film for science. The way they get those colorful highlights is to *subtract the base rate metabolism* in that region of the brain from the rate that they observe while you are thinking "pencil." Brain researchers have been happily stuffing people's heads into confined spaces for decades now, exposing them to stimuli and scanning their brains. And all the while they have been subtracting, subtracting, subtracting.

The brain scanning crowd has finally turned their attention to the object of their habitual subtraction, which is now known as the *default mode* of the brain. The unconscious is finally getting some serious scientific attention! The default mode is always on, whether you are sound asleep, daydreaming, or doing vigorous philosophy, and it turns out that this constitutes about 97% of the metabolic activity (thinking) that goes on in the brain. What are all those default thoughts thinking about and how do they decide about that? I suspect that they take their cue from us, from our conscious intentions, in proportion to the clarity and determination with which we hold them. In the absence of clear and determined intentions the dark energy dissipates like foam upon the sea. What are your intentions and what is the strength of your determination to realize them? How thoughtful, constructive, and exhilarating are they? How seriously do you take these questions? Trust me. Call me.

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