

## **You're Checked Out, but Your Brain Is Tuned In**

Even the most fabulous, high-flying lives hit pockets of dead air, periods when the sails go slack. Movie stars get marooned in D.M.V. lines. Prime ministers sit with frozen smiles through interminable state events. Living-large rappers endure empty August afternoons, pacing the mansion, checking the refrigerator, staring idly out the window, baseball droning on the radio.

Wondering: When does the mail come, exactly?

Scientists know plenty about boredom, too, though more as a result of poring through thickets of meaningless data than from studying the mental state itself. Much of the research on the topic has focused on the bad company it tends to keep, from depression and overeating to smoking and drug use.

Yet boredom is more than a mere flagging of interest or a precursor to mischief. Some experts say that people tune things out for good reasons, and that over time boredom becomes a tool for sorting information — an increasingly sensitive spam filter. In various fields including neuroscience and education, research suggests that falling into a numbed trance allows the brain to recast the outside world in ways that can be productive and creative at least as often as they are disruptive.

In a recent paper in *The Cambridge Journal of Education*, Teresa Belton and Esther Priyadharshini of East Anglia University in England reviewed decades of research and theory on boredom, and concluded that it's time that boredom "be recognized as a legitimate human emotion that can be central to learning and creativity."

Psychologists have most often studied boredom using a 28-item questionnaire that asks people to rate how closely a list of sentences applies to them: "Time always seems to be passing too slowly," for instance.

High scores in these tests tend to correlate with high scores on measures of depression and impulsivity. But it is not clear which comes first — proneness to boredom, or the mood and behavior problems. "It's the difference between the sort of person who can look at a pool of mud and find something interesting, and someone who has a hard time getting absorbed in anything," said Stephen J. Vodanovich, a psychologist at University of West Florida in Pensacola.

Boredom as a temporary state is another matter, and in part reflects the obvious: that the brain has concluded there is nothing new or useful it can learn from an environment, a person, an event, a paragraph. But it is far from a passive neural shrug. Using brain-imaging technology, neuroscientists have found that the brain is highly active when disengaged, consuming only about 5 percent less energy in

its resting “default state” than when involved in routine tasks, according to Dr. Mark Mintun, a professor of radiology at Washington University in St. Louis.

That slight reduction can make a big difference in terms of time perception. The seconds usually seem to pass more slowly when the brain is idling than when it is absorbed. And those stretched seconds are not the live-in-the-moment, meditative variety, either. They are frustrated, restless moments. That combination, psychologists argue, makes boredom a state that demands relief — if not from a catnap or a conversation, then from some mental game.

“When the external and internal conditions are right, boredom offers a person the opportunity for a constructive response,” Dr. Belton, co-author of the review in the Cambridge journal, wrote in an e-mail message.

Some evidence for this can be seen in semiconscious behaviors, like doodling during a dull class, braiding strands of hair, folding notebook paper into odd shapes. Daydreaming too can be a kind of constructive self-entertainment, psychologists say, especially if the mind is turning over a problem. In experiments in the 1970s, psychiatrists showed that participants completing word-association tasks quickly tired of the job once obvious answers were given; granted more time, they began trying much more creative solutions, as if the boredom “had the power to exert pressure on individuals to stretch their inventive capacity,” Dr. Belton said.

In the past few years, a team of Canadian doctors had the courage to examine the fog of boredom as it thickened before their (drooping) eyes. While attending lectures on dementia, the doctors, Kenneth Rockwood, David B. Hogan and Christopher J. Patterson, kept track of the number of attendees who nodded off during the talks. They found that in an hourlong lecture attended by about 100 doctors, an average of 16 audience members nodded off. “We chose this method because counting is scientific,” the authors wrote in their seminal 2004 article in The Canadian Medical Association Journal.

The investigators analyzed the presentations themselves and found that a monotonous tone was most strongly associated with “nod-off episodes per lecture (NOELs),” followed by the sight of a tweed jacket on the lecturer.

In a telephone interview, Dr. Rockwood, a professor of geriatric medicine at Dalhousie University in Halifax, Nova Scotia, said when the material presented is familiar, as a lot of it was, then performance is everything. “Really, what it comes down to,” he said, “is that if you have some guy up there droning on, it drives people crazy.”

Dr. Rockwood and his co-authors have followed up with two more related reports and attribute the inspiration for the continuing project to Dr. Patterson.

Early on in one of those first dementia lectures, he went out cold.

By BENEDICT CAREY

Courtesy:

<http://www.nytimes.com/2008/08/05/health/research/05mind.html?ex=1375588800&en=72a7a625b84414f5&ei=5124&partner=facebook&exprod=facebook>