

THE SLEEP EXPERIMENT

By Jeremy Bates

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WORLD'S SCARIEST PLACES: VOLUME TWO

THE SLEEP EXPERIMENT

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First Printing: 2019

ISBN 978-1-988091-42-6

*“There’s something in us that is very much attracted to madness. Everyone who looks off the edge of a tall building has felt at least a faint, morbid urge to jump. And anyone who has ever put a loaded pistol up to his head... All right, my point is this: even the most well-adjusted person is holding onto his or her sanity by a greased rope. I really believe that. The rationality circuits are shoddily built into the human animal.” – **Stephen King***

Prologue

Flanked by his defense team, Dr. Roy Wallis exited the San Francisco Hall of Justice minutes after a jury had acquitted him of all the charges filed against him in his nearly month-long trial. Hundreds of boisterous demonstrators, cordoned off behind police tape, filled Bryant Street outside the austere building. Many held homemade signs proclaiming dire end-of-times warnings such as: “The RAPTURE is upon us!” and “Judgment Day is coming!” and “REPENT now for the END is near!”

Dr. Wallis stopped before a phalanx of television cameras for an impromptu and celebratory press conference. When the throng of journalists and reporters quieted down, he said into the two-dozen or so microphones thrust at him, “Walt Whitman once wrote that ‘the fear of hell is little or nothing to me.’ But he was Walt Whitman, so he can write whatever he damn well pleased.” Wallis stroked his beard, reveling in the knowledge the world would be hanging onto his each and every word. “I’m guessing,” he continued, “Walt most likely never believed that hell existed in the first place, hence his cavalier attitude.” He shook a finger, as if to scorn the father of free verse. “But I, my lovely friends, I now know hell exists, and let me tell you—it scares the utter shit out of me.”

Resounding silence except for the *cluck-cluck-cluck* of photographs being snapped.

Then everyone began shouting questions at once.

Last Day of Instruction

Six months earlier

Friday, May 11, 2018

“Why do we sleep?” Dr. Roy Wallis said, his eyes roaming the darkened auditorium inside UC Berkeley’s School of Public Health, Education, and Psychology. Five hundred or so students filled the tiered gallery that fanned around him, though the stage spotlights washed most of them in black. “It seems like a silly question, doesn’t it? Sleep is sleep. It’s an essential part of our survival. Sleep, food, water. The Big Three you can’t do without. Nevertheless, while the benefits of food and water are quite evident to us, the actual benefits of sleep have always been masked in a shroud of mystery.”

He depressed the forward button of the presentation clicker in his right hand and turned slightly to confirm the image on the projection screen behind him. It depicted a sleeping person with a number of question marks above her head.

“The truth,” Dr. Wallis continued, “is that nobody really knows why we sleep, even though the subject has fascinated humans for more than two millennia. The Rishis of India agonized over our

states of waking consciousness and dreaming. The ancient Egyptians built temples to the goddess Isis, where devotees met with priests to engage in early forms of hypnosis and dream interpretation. The Greeks and Romans had sleep deities such as Hypnos, Somnus, and Morpheus. The Chinese philosopher, Lao Tzu, compared sleep to death. William Shakespeare characterized sleep as ‘nature’s soft nurse’ due to its restorative nature. However, in terms of scientific understanding, the exact mechanisms of sleep remained largely mysterious until the mid-twentieth century. Researchers have since shown that neural networks grown in lab dishes exhibit stages of activity and inactivity that resemble waking and sleeping, which could mean sleep arises naturally when single neurons work together with other neurons. Indeed, this explains why even the simplest organisms show sleep-like behaviors.”

Dr. Wallis clicked to the next image. A photograph of an alien-looking worm on a black background appeared behind him. “Cute, isn’t he? That’s *Caenorhabditis elegans*—a tiny worm with only three hundred and two neurons. Yet even it cycles through quiet, lethargic periods that you could argue might be sleep. Admittedly, it’s not sleep as we think of the term, but that’s because we have larger and more complex brains, which require deeper neural networks. More neurons joining with other neurons equals a greater period of inactivity—such as the seven or eight hours of shuteye we experience each night.”

Wallis paced across the stage, stroked his beard.

“Nevertheless, even if this theory is true—neurons drive our stages of wakefulness and sleep—it still doesn’t explain *why* we sleep, or what exactly is *going on* during sleep. And a lot is going on, my friends. Our bodies don’t simply shut down when Mr.

Sandman comes a-knocking. On the one hand, it seems our brains use this period of inactivity to take out the trash, so to speak. The brain is a huge consumer of energy, which means all those waste chemicals that are produced as part of a cell's natural activity have to get flushed out sometime. Moreover, it seems the brain also uses this downtime to reorganize and prioritize the information it has gathered during the daytime, as well as consolidates our short-term memories into long-term ones. This explains why when you lose sleep, you tend to have problems with your attention span, working out problems, recalling certain memories, even regulating your emotions. Everything's a little out of whack."

Dr. Wallis scanned the dark veil before him. The few spectral students he could make out in the first couple of rows were watching him intently.

"Having said all of this, the human brain is an incredibly complex and powerful organ. It has more than enough computing power to get its housekeeping done while we're awake. So why shut down the entire body each night and leave us as defenseless as newborns? Is there something else going on during sleep that we don't know about? Maybe." He shrugged. "Or maybe not."

Click. A moody Neolithic scene appeared on the projection screen in which a band of fur-clad prehistoric humans hunkered inside the mouth of a cave as the setting sun bloodied the evening sky. Each burly figure gripped a stone weapon. Each set of large eyes appeared weary and watchful of the lurking dangers that night called forth.

"For our poor stone-age ancestors, it made sense for them to search for resources during the daytime when they could see best, and to hide during the nighttime when predator activity was at its peak. Yet...what do you do while hiding? If any of you have

played Hide-and-Seek with an obtuse friend or sibling, you know that hiding becomes boring fast, because you're not doing much of anything. Imagine hiding in the same spot from dusk until dawn. Every night. Three-hundred-sixty-five days a year. It'd be worse than listening to a tape of Fran Drescher and Gilbert Gottfried arguing on eternal loop. So to pass the time—and as an added bonus, to conserve energy—their bodies shut down until it was time to get up and go look for food again. Such a solution applies not only to humans but pretty much every lifeform on the planet. Hell, even machines similarly 'sleep,' not to stave off boredom, of course, but to conserve energy.”

Dr. Wallis paced, stroked his beard, paced some more.

“So back to my initial question of why we sleep...? Well, if you want my opinion, I believe the answer to be pathetically pedestrian. We sleep, my young friends, to pass the time and to conserve energy. All that other jazz I mentioned that goes on when the lights are out—your brain flushing waste chemicals, categorizing learning and memories—that's all ancillary, accomplished during sleep because sleep offers a convenient, not necessary, time to do so.”

Click. Gone were the prehistoric humans on the projection screen, replaced by a gleaming city of glass and steel. He gestured toward the image.

“London, England. A far cry from the untamed plains and forests of ancient Eurasia, isn't it? No cave lions or bears are going to get you there. Food's not a problem either. Enter any supermarket to access aisle upon aisle of every type of food imaginable, all of which is restocked daily. Thus safety from predators and conserving our energy are no longer problems for contemporary humans. The majority of the population has evolved beyond such basic

needs. So allow me to now ask you a *new* question, my inquisitive friends.” He paused dramatically, acquiescing to the showman inside him. “In this enlightened day and age, do humans even *need* sleep?”

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“I won’t beat around the bush,” Dr. Wallis said. “My answer is simple. No, I don’t think humans need sleep. In fact, I think the entire human race is sleeping solely due to habit.”

Chatter and uncertain laughter filled the auditorium.

Wallis waited it out for a few seconds before holding up his hands, palms forward, to command attention once more.

The mutiny died down.

Wallis depressed the forward button on the presentation clicker. The new image showed a businessman in a suit and tie seated behind a desk in a cluttered cubicle. His eyes were bloodshot, his face lined with exhaustion. A steaming cup of coffee stood next to his keyboard. “Yes, I know what you’re thinking. If we don’t need sleep, why do we look like this guy after an all-nighter? I’ll tell you why. Because while you were out partying, your body was building up what biologists refer to as sleep pressure. That’s right, that’s what they call it—sleep pressure. What exactly is this sleep pressure, you ask? Well, those same biologists don’t know. They’ve simply named something they don’t yet understand. Think dark matter. We know it exists, we just don’t know why. So...sleep pressure,” he repeated, as if tasting the word. “Sleep pressure. Indeed, it’s like a Tolkien riddle-game, isn’t it? What accumulates during wakefulness and disperses during sleep? What is this metaphorical tally of hours, locked in some chamber

of the brain, waiting to be wiped clean every night? And imagine...what if we could *access* it? What if we could *reprogram* it?" He smiled. "What if, my beautiful friends, we could *delete* it? Yes, delete sleep pressure. Remove forever tiredness and sleep—that colossal waste of time when we fall unconscious every night, that evolutionary anachronism that has no practical benefits for contemporary humans. Imagine if you had an extra seven or eight hours every day just how many more selfies you could post to Instagram?"

Some chuckles, though not many. The air in the auditorium sizzled with expectation.

Dr. Wallis went to the podium in the center of the stage. He played his fingers down the lapels of his tailored suit jacket. When he was sure every set of eyes in the audience were upon him, he said, "Let us consider what happened in January of 1964, my friends. A high school student in San Diego named Randy Gardner went eleven days—that is, two hundred and sixty-four hours—without sleep. Most interesting of all, near the end of the eleven days, he was not shuffling around like a zombie. To the contrary, he, among many other fascinating feats, was able to beat the researcher conducting the experiment in pinball. He also presided over a press conference in which he spoke clearly and articulately. Overall, he proved to be in excellent health."

"How long did he crash for?" a male voice in the darkness called out.

"Thank you for the segue," Wallis said. "How long did he sleep for after the eleven days? Not for as long as you would expect. A mere fourteen hours—twice the number of hours the average person sleeps today. When he woke, he was not groggy at all. He was completely refreshed. That boy is now an old man. He is still alive

today, to the best of my knowledge, and time has revealed no long-term physical or psychological side-effects at all.”

Silence—but not the bored kind found too often in lectures halls across academia. Rather, this silence was wound tight as cat-gut, ready to be plucked with a deafening revelation.

Dr. Wallis did not plan to disappoint. He said, “As amazing as Randy Gardner’s eleven days of wakefulness is, it pales in comparison to several other cases of people who have defied sleep. During the First World War, a Hungarian soldier named Paul Kern was shot in the head. After recovering from the frontal lobe injury, he was no longer able to fall asleep or become drowsy. Despite doctors telling him he would not live long, he survived without sleep for another forty years, when he died from natural causes in 1955. More recently, in 2006, a few months into a new laboratory job, a man named John Alan Jordan spilled industrial-strength detergent on his skin, which contaminated his cerebral spinal fluid. Soon after, he stopped sleeping and has not been able to sleep a wink since. Likewise, a man named Al Herpin developed a similarly rare case of insomnia, though for unknown reasons. When medical professionals inspected his house, they found no bed or other sleep-related furniture, only a single rocking chair in which Herpin said he read the newspaper when he wanted to rest. To this day he remains in perfect health and doesn’t seem to suffer any discomfort from his remarkable condition. There are other cases too: a woman named Ines Fernandez who hasn’t slept for decades despite consulting dozens of doctors and taking thousands of different narcotics and sedatives; a Vietnamese gentleman named Thái Ngọc who hasn’t slept since suffering a fever in 1973. And so on and so forth. What’s most amazing is that in every case the subjects remain perfectly healthy. Ines Fernandez is still alive and

ticking. Same with Thái Ngọc, who boasts of carrying two one-hundred-plus pound sacks of rice more than two miles to his house every day.”

Dr. Wallis retrieved his glass of water, beaded with condensation, from the podium. He took a sip. The warm water soothed his throat.

He set it back down and said, “Call these folks evolutionary freaks, if you want, call them anything you like, if that will help you accept their extraordinary stories. But one thing they make perfectly clear is that humans don’t *need* sleep to survive. We sleep because we have always slept. Because of that mysterious thing inside us all called sleep pressure...sleep pressure that perhaps one day we will be able to isolate and negate...” In the distance the sixty-one-bell carillon in Sather Tower began to chime. Wallis glanced at his wristwatch: class was finished. “Good luck on your exams everybody!” he said over the clamor of students packing their bags and making a general exodus toward the doors. Then, cheekily: “Don’t stay up too late cramming!”

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When Dr. Roy Wallis finished transferring his notes from the podium to his leather messenger bag, he discovered he was not alone in the auditorium. A woman remained seated in the front row of seats. With almond eyes, high cheekbones, a prominent jawline, and straight and glossy black hair, she was beautiful in a classical Asian sense. Her brown eyes sparkled when they met his. She smiled, her cheeks dimpling.

She clapped her hands lightly. “Great lecture, professor,” she said. “I really enjoyed it.” She stood and ascended the stairs to the

stage. She was dressed cute-tomboyish in an oversized plaid shirt, loose blue jean overalls rolled up at the cuffs, and powder-blue sneakers. She stopped on the other side of the podium. “But I think you might have overlooked something.”

Dr. Wallis zipped his messenger bag closed. “Oh?” he said. Penny Park was one of his brightest students. She was also one of two researchers he’d selected to assist him with the Sleep Experiment in ten days’ time. She was from a low-income family in South Korea and was currently receiving a full academic scholarship. Despite having only lived in the States for three years, her English was impressively fluent. Her accent, however, needed some work, especially her pronunciation of Rs and Ls, which she consistently mixed up.

“Predators,” Penny said. “You mentioned prehistoric humans needed to hide from predators during the night, and sleep resulted from hiding, something to pass the time.”

“I did say that, Penny. I’m glad you were paying attention.”

“Don’t patronize me, professor. You know I *always* listen when you’re speaking. But I was saying...okay, our ancestors, they had to hide during the night. But what about *predators*? The ones at the top of the food chain? They just hunt. They don’t need to hide. So they don’t need to pass the time and, according to you, they don’t need to sleep. But they *do* sleep. So what you say, it doesn’t make total sense. Why don’t they just hunt all the time? Never go hungry?”

“You raise an excellent point, Penny,” Dr. Wallis told her, impressed with her astuteness. “Predators do indeed also experience sleep pressure. Why is this? I believe for the same reason prey animals experience it. Boredom.”

“Boredom?”

“They evolved to do one thing: hunt. But hunting 24/7 would grow tiresome, for lack of a better word. Sleep provides a break from this routine. Keeps them...sane, I suppose you might say. Anyway,” he added, motioning Penny toward the exit doors and falling into step beside her, “perhaps the Sleep Experiment in ten days’ time will shed some much needed light on the subject?”

“I’m so excited to be participating in the experiment. I think about it all the time.”

“Me too, Penny. Me too.”

She pushed through one of the double doors. Wallis flicked off the stage lights, then gave a final, nostalgic glance around the empty lecture hall, knowing he would not be back until the new fall semester in September.

“Professor?” Penny was holding one door open for him.

“Coming,” he said, and joined her.