

At some point in the next 24 hours, parts of your brain may shut down temporarily, while other parts may remain active. Your eyes may flutter under closed lids. You may seem to experience frightening, hallucinatory events that defy logic. If this were happening to you during your waking hours, you might be diagnosed as mentally ill. If your brain behaves in this irrational way while you are asleep, we call it dreaming. But what, exactly, are you doing when you dream? J. Allan Hobson '55 wakes up every day with questions like that on his mind.

He became one of America's foremost dream researchers in a roundabout way. He and I talk about how it all started as we wait for a group of middle schoolers to show up at his renovated barn in northern Vermont. He bought the scenic, remote 15-acre mountain retreat in 1965 for a mere \$10,000. With local artisans and carpenters, he's spent countless expensive hours restoring the white farmhouse and spacious barn, where he's installed remnants of *Dreamstage*, a multimedia exhibit about dreaming that had its debut at Harvard's Carpenter Art Center in 1977. Hobson was then professor of psychiatry at Harvard Medical School—his other alma mater. He interned at Bellevue Hospital in New York and started his residency in psychiatry at Massachusetts Mental Health Center in Boston.

That's when he began to have serious doubts about the efficacy of psychoanalysis, which he calls "the god that failed."

"I thought it was a science," he says simply. "It's not."

Hobson doesn't mince words about the clinical career he abandoned to conduct brain research. "Psychiatrists don't know much of anything about what really goes on in the brain," he says. That's why he set off for the National Institutes of Health, where he met a dream researcher who invited him into his sleep lab. "He said he could tell when people were dreaming by studying brain activity," Hobson recalls. "I thought this highly unlikely, but then I saw it for myself. I was hooked."

He decided to study dreaming as a model for psychosis, using evolving technology to study, as he puts it, "the way the brain changes from waking when we are relatively sane to dreaming when we are relatively insane."

Using words like "sane" and "insane" to describe waking and dreaming raises hackles in some scientific circles, but in his many articles and books, Hobson backs

up his dream theories with evidence. The more experiments he conducted, the more trouble he had accepting the tenets of Freudian theory. Freud, he says, didn't have modern instruments like electroencephalograms (EEG) and magnetic resonance imaging (MRI) to study the way the brain changes during sleep. Hobson points out that REM (Rapid Eye Movement) sleep is the state in which most of our dreams, and our most hallucinatory dreams, occur. Whereas Freud would say we are unconscious when we dream, Hobson would say that our dreams are conscious, but often unremembered. And Freud's thesis that dreams conceal unacceptable wishes and desires is anathema to Hobson. "My theory," he explains, "is that the dreaming brain is auto-creative—not just piecing together fragments of memory, not hiding from its own wishes and impulses, but creating a reality of its own. It's a virtual reality machine."

Hobson peers at dreamers not only in sleep labs, but also in paintings and photographs. He's especially proud of the lavishly illustrated *From Angels to Neurons*, which he co-authored with art historian Hellmut Wohl. As they see it, our nocturnal images seem unpredictable and surreal not because, as Freud would have it, the dreamer is concealing unacceptable desires, but because the frontal cortex, normally tasked with working memory, directed thought, and critical judgment, is "off-line," especially during deep sleep.

So if, as Hobson argues, Freud was wrong about the purpose for dreams, then why *do* we dream? Hobson offers some answers to that question in his book, *Dreaming: An Introduction to the Science of Sleep*. But he's reluctant to serve up one comprehensive theory. Instead, he cites several hypotheses, drawing on philosophy as well as science.

"The most popular current theory," he writes, "is that the activation of the brain in sleep is necessary for us to reorder information inside our heads, to get rid of certain obsolete memories, to update memories, and to incorporate new experiences into our memory systems." And why do we do all that? One reason may be that our brains actu-

Photo, right: J. Allan Hobson '55, one of America's leading dream researchers, talks to middle schoolers in his renovated barn in Vermont.



ally construct themselves while we sleep. “There is no reason to think that development stops once we have acquired language,” Hobson explains. A more primary reason may have to do with human survival itself. “In other words,” Hobson suggests, “we need, first and foremost, to know when to approach, when to mate, when to be afraid, and when to run for cover. These are skills that sleep refreshes every night of our lives by activating our brains.”

During my springtime visit to his barn museum, Hobson seems pleased that I had read his books—at least, a few of them. But I want to test his theory in an everyday context. So I sketch out a short outline of a dream I had had earlier in the week, and ask him how to think about it.

“I was in my former newsroom at Maine Public Broadcasting,” I tell him, “where I no longer work. I was really just a visitor there, but I was concerned about two children who had been brought to work by my former colleagues. Each child was sitting in a swivel chair, and I worried that they would fall off and hurt themselves.” I pause, trying, I suppose, to build suspense. “The thing is, the children weren’t human. They were ripe tomatoes.”

Hobson looks squarely at me, almost through me, his wispy white hair catching the sun.

“It’s so obvious, right there on the surface,” he begins. “You don’t need an analyst. Are you not a mother?”

“Yes, but my own children are grown. And why would my brain turn someone else’s kids into tomatoes?”

“It makes total sense,” he says. “Your sleeping brain has constructed a very logical image for child raising. Children really *are* like tomatoes. Fragile, in need of constant attention, colorful... and my guess is, here in Vermont, you have just planted some real tomatoes.”

“Right.” And, I think to myself, they aren’t doing so well.

“You see,” he goes on, “dreams are not devoid of meaning. I have never argued that. What I believe is that they do not hide meaning—and this one certainly doesn’t.”

But a Freudian might have a field day with those tomatoes. Forbidden fruit? Sexual orbs?

Did I covet those kids? Did I secretly desire a relationship with one of the parents? Was my brain reacting to stimuli from the past or, as Hobson would argue, writing its own material, using only the bits and fragments at its disposal, and leaving it to my diurnal, rational brain to “make” something of it? Do I know *how* to make something of it, or do I need a trained therapist for that?

One of Hobson’s most prominent critics, Dr. Mark Solms, might say, “Yes, you do.” A psychoanalyst and honorary lecturer in neurosurgery at the St. Bartholomew’s and Royal London School of Medicine, Solms has sparred with Hobson for over a decade in the pages of scholarly journals and on the stages of conferences. While such debates can be easily oversimplified and misconstrued, it’s fair, at least, to say that Hobson unequivocally rejects Solms’s Freudian notion that dreams are like secret codes decipherable in therapy. This puts Hobson at odds with a slew of other psychoanalysts, as well.

“What does it mean,” Jon Sutton asked him in a recent interview for *The Psychologist*, a British magazine, “to ask whether dreams have meaning?”

“Damned if I know,” Hobson answered. “Something beyond appearances? Symbol decoding? True motivation? My dreams are so laden with meaning that I need not look further than my detailed reports for all the meaning I might need to permit a very detailed psychic overhaul.”

Hobson has his own band of disciples and allies, and even when they disagree with him, they admire his boldness. In a 2007 article for *The Believer*, Robert Stickgold, di-

rector of the Center for Sleep and Cognition at Beth Israel Deaconess Medical Center, sees Freudian psychoanalysis as a vulnerable target—even if, as he hints, Hobson sometimes “overshoots” the mark. “When Einstein came up with his theory of relativity and basically said that everything Newton found was subtly wrong, there were no people out there screaming ‘how dare you, how *dare* you challenge the laws of Newton!’”

Even though Hobson relishes an intellectual joust (and remains on good terms with many of his “enemies”), it’s increasingly important to him that his work be understood on its own terms, not just as a diatribe against Freud. He works hard to make his research findings accessible to laypeople. That’s why he wants to turn his barn exhibit into a resource for science teachers, through field trips and via the Internet. Summering in Vermont, spending the rest of the year in Sicily with his Italian wife and 13-year-old twins, the 76-year-old iconoclast is vigorously leading what he calls his “second scientific life.” He teaches and lectures throughout Europe, most recently about “lucid dreaming”—the relatively rare hybrid state in which the sleeper is just awake enough to be aware that a dream is in progress. It’s a subject he never tires of talking about, especially with visitors to his dream museum.

On the day of our interview, a weather-beaten yellow school bus lumbers into the barnyard. About 15 seventh graders had been well prepared for the field trip by their science teacher, Lois Michaud. She’s created a curriculum based on research by Hobson and others about the dreaming brain. The kids scramble into his study, drop their backpacks at the door, and make a dash for seats around his table or at his feet. Then comes a mini-inquisition.

“How many cells are in your brain?” Hobson asks.

“Too many,” one wag answers. Hobson shoots him a stern look.

“A hundred?” another ventures.

“If you mean 100 billion, you’re right,” Hobson answers. “And do they talk to each other? How many other cells can they talk to at one time?”

“Ten thousand?” The kid in the front row seat had obviously been paying attention, back in school. His teacher beams.

“It’s one of the most important things Hobson can give them, helping them to learn about their



FREUD’S THESIS THAT DREAMS CONCEAL UNACCEPTABLE WISHES AND DESIRES IS ANATHEMA TO HOBSON, WHO BELIEVES, INSTEAD, THAT THE BRAIN GETS—AND NEEDS—NO EXTERNAL STIMULI TO CONSTRUCT A DREAM.

own brains. And the importance of sleep is one of the most significant things we can teach them,” she whispers to me.

Checking her watch, she leads her charges into the gallery.

It’s a dream-like place. The dimly lit walls are plastered with DayGlo colored photographs of brain waves that look like abstract paintings. Sequences of postcard-size photos document the way a boy and his cat shift positions—often mirroring each other—during a fitful night of sleep. Video screens mounted on the ceiling display interviews with sleepers. Most of the kids rush through the media, making a beeline for a big glass case in the center of the room. Inside, two mannequins appear to sleep in one bed. (In the original 1977 exhibit, the sleepers were real-live volunteers wired to machines recording audibly and visually their states of consciousness as they slept.) In this gallery, the life-size dolls wear terra-cotta masks. The stunned students stare at them and then at a human brain in a jar, preserved in formaldehyde, at the corner of the glass bedroom.

“Look,” a budding scientist notes matter-of-factly. “It’s backwards. The frontal lobes are in the back.”

After their tour the kids trickle back into Hobson’s office to talk about their own dreams. One girl recalls a nightmare about snakes, scary enough to wake her up.

“You know,” Hobson tells her gently, “most dreams are unpleasant. When people tell you to have a ‘good’ dream, they are betting against the odds. But if you have a really bad dream and you wake up, you can sometimes just tell your brain not to go back to that dream. Try it next time.”

A few kids start to fidget. Time to wrap up.

“Your brain is just a marvelous thing, isn’t it?” Hobson asks. “It’s your most sacred possession. First you have to acknowledge it, and then you have to take good care of it. I’ve heard that many college students use a risky drug called Adderall to stay awake. It fools the brain and won’t let you sleep. Its common use is both medically and morally alarming. Taking an exam and signing the honors pledge—‘no aid, no violations’—when you are jazzed up on speed, is like breaking the home-run record or winning the Tour de France with the help of steroids!”

The room gets quiet. With a signal from their teacher,

the kids gather their book bags, say their thank you’s, and head outside. “I don’t want to be the drug and alcohol police,” Hobson says, looking out the window as the bus pulls away. “I just want them to be aware of what a precious thing the brain is, and how easily they can damage it with chemicals that shouldn’t be there.”

A few weeks later, after spending a month in Europe teaching and lecturing, Hobson greets a slightly older group of young people from a drug and alcohol rehab program about 50 miles away. They listen politely as Hobson explains the difference between REM (Rapid Eye Movement) and non-REM dreaming. “When you first fall asleep,” he says, “you go through non-REM stages. Your memory doesn’t work at that point, but it’s the only time when young sleepers secrete important hormones needed for growth and development. For years we thought that sleep was a time when the brain was inactive. But now we know better. It’s a time when the brain is working very hard, preparing us for the life we will live when we wake up. It’s learning a lot—in fact, the brain is learning how to be a brain.”

It’s a lot to take in. One teen-age girl raises her hand. “Why do I keep dreaming that I am pregnant? It scares me. I keep trying to wake up and stop that dream, but it just starts up again.”

Tricky question. Hobson doesn’t dodge it. “Sounds like you have reason to be concerned about that,” he says, “if you are sexually active. I’m not saying you are sexually active, but *if* you are, this dream is saying something to you and you need to listen.”

“Why,” I ask (maybe to get the girl off the hook), “are most dreams negative, or anxiety ridden, instead of happy or carefree?”

Hobson smiles. “I’m a Darwinian about that. To be happy you have to survive. And to survive, you sometimes have to be fearful. Freud thought anxiety was always a symptom. But sometimes it’s justified. If you are in a dark street, it pays to be vigilant.” He nods in the girl’s direction. “And if you are concerned about getting pregnant, you’d better not make love without protection.”

This is the kind of candid conversation that often happens when people ask Hobson about their dreams. While

he may be skeptical about the usefulness of psychoanalysis, Hobson nevertheless has hung a photograph of Freud in his office, next to another one—a double exposure—of Hobson. “You see there, “ he chuckles, “I am psychoanalyzing myself.”

Whether or not Hobson engages in self-analysis, his own body has yielded scientific insights. In addition to recording his many dreams in meticulously kept journals, Hobson once even studied his own brain following a stroke in 2001. He couldn’t sleep for a week, and lost the ability to dream for about a month. He documented the brain stem trauma with a camera and tape recorder, keeping track of hallucinations, pain, nausea, and, finally, an early sign of recovery—a dream about adultery.

The stroke does not seem to have impaired him. But these days, he is nursing a bad back. When it’s time to leave the museum, he limps down the stairs, and then, on level ground, strolls more briskly into his farmhouse. He has a lot to do. The first floor of the barn is getting spruced up. He hopes to turn it into a place for weddings or other celebrations. He’s busily filling a new gallery on the second floor with artwork by his friends and neighbors. He’s just written an article for *Sleep* magazine, and he also wants to spend time with his twins.

This dream pioneer says he sleeps more now than he did when he was younger, and he remembers fewer of his nighttime reveries. But in his waking hours, his frontal cortex still fires on all cylinders in whatever time zone he finds himself. “My body’s letting me down,” he laments, “but my brain has never been better.” And it’s his brain, of course, that’s praised on the plaque from Wesleyan for a Distinguished Alumnus Award in 2005, which he proudly hangs on his wall. “Throughout history,” it says, “explorers have staked a special claim on our imagination like argonauts who descend to the deepest recesses of the oceans. You seek to illuminate those poorly chartered regions of the mind that emerge when we close our eyes to awareness of self.”

“I’d like to think some of that is true,” he says. Only “some” of it? Always the scientist, he’s skeptical about the power of words to tell the full story, even about himself.

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