



DOUBLE MAJOR: From the battlefield to the mating field, Jeffrey Hall has a unique teaching arrangement.

Lord of the Flies

Jeffrey Hall can deliver a lecture about the courtship behavior of fruit flies as easily as he can cover the battle of Gettysburg. Odd combination. But Hall is no ordinary university professor.

IN THE SPRAWLING SOLAR SYSTEM THAT IS Boston academia, Harvard and MIT are the two blinding suns at the center. BU, BC, Wellesley, and Tufts are some of the larger, better-known planets wheeling about.

Brandeis is Pluto—part planet, part comet.

As they say on campus, Brandeis is Brand X, the school that is defined by its indefinability. Having turned 50 in 1998, Brandeis is neither new nor old. It was conceived as a Harvard for Jews but is today neither entirely Jewish nor entirely not. Located on the edge of Route 128 in Waltham, it is neither in Boston nor out. Of late, Brandeis has tried to buy an identity by bringing in national figures like Robert Reich and Anita Hill. But it may be that a better icon for the school is, well, more iconoclastic, and certainly

more indigenous: 56-year-old, Harley-riding biology professor Jeffrey Hall, who, after a quarter-century of tenure, is still a category breaker. In an arrangement that is uniquely, not to say peculiarly, Brandeisian, Hall serves not only as a prominent professor of neurogenetics, specializing in the courtship behavior and biological rhythms of that exalted genetic resource, the fruit fly, but also as a prized lecturer on the battle of Gettysburg.

"Brandeis is so fast and loose and informal, I didn't have any problem offering a history course as a biologist," Hall says with a shrug. "The barriers would be far more formidable, unscalable, at other institutions. But this is a user-friendly place. It's "*Shmedrik University*"—that's a Yiddish word for even worse than *schlemiel*. We're a funky, strange, non-brand-name enterprise." [Continued on page 88]



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Ivory Tower *[Continued from page 86]*

And so is he. His competing interests are immediately apparent in his attic-like office in the cinder block science building. A Civil War musket hangs on the far wall, and underneath it, in great block letters, is a line spoken by Jeff Goldblum in David Cronenberg's remake of *The Fly*: BE AFRAID, BE VERY AFRAID. Movie stills of the giant insect-hero from the original 1956 version (which Hall prefers) are pinned up to one side. "That one is biologically disgusting," he says with some relish. Photographs of various eminent genetic colleagues fill the bulletin board, most noticeably his friend Tim Tully wearing Pavlov's top hat in the noted Russian behaviorist's apartment in St. Petersburg. Those photos montage with portraits of Civil War greats Grant, Sherman, and Lincoln. A blurry photo of the fiery abolitionist John Brown, who is in some ways a spiritual mentor, sits atop Hall's computer screen.

This Tuesday morning, Hall himself is wearing jeans, motorcycle boots, and a Confederate hat that looks like a derby someone has sat on. His chin is, as usual, adorned with a few days' worth of what he calls a "Don Johnson beardoid." Picture Dustin Hoffman playing a whacked-out, backcountry fisherman, and you pretty much have him. "People always think I'm Jewish," he says. "Actually, I'm a lapsed Catholic."

Born in Brooklyn and raised in the D.C. suburbs, he now lives in Wayland, a career single, with two terriers. He is a rock 'n' roll fiend, having hosted his own show on Brandeis radio. And he is both blessed and cursed with a photographic memory. He can recall scientific citations going back a full century, but, as a rabid sports fan, he can never forget game-losing dunderhead plays from decades ago, either. So for years now, he has watched the Red Sox *only* on tape after the result is known. To this day, he thanks God that he had this system in place when Mookie Wilson's infamous grounder dribbled by Bill Buckner in the 1986 World Series. But he's also unable to forget a grudge, and he has lost friends and pissed off colleagues because of it. "There's an angry streak there," says one person who knows Hall well. "A certain bitterness. He is as much an angry man as he is a charismatic one."

But it's the charisma that is on show today in his fly room. And you know that's where you are because on the

door is an X-rated picture of mating fruit flies, their eyes obscured to protect their identities. On the floor, several thousand of his tiny specimens flit about inside containers the size of prescription bottles. While, to most people, the fruit fly may seem only a nuisance hovering about the peaches, to Hall it has been—along with its confreres the nematode worm, *E. coli*, brewer's yeast, and the mouse—one of the great resources of modern genetics. In fact, Hall would argue that before James Watson and Francis Crick discovered the double-helix shape of DNA, genetics *was* the fruit fly. Researchers in the lab of Thomas Hunt Morgan at Columbia University discovered a mutation in the fruit fly's genes that produced weird, white eyes rather than the usual brick-red ones. The results of this discovery, published in part by Morgan's student Alfred Sturtevant in 1915, were the source of the genetic revolution that eventually led to the human genome project, genetically altered food, fights over IQ, designer babies, and all the countless other aspects of the Genes 'R' Us movement that has come to overwhelm the culture.

Hall himself first got involved with the fruit fly when he was an undergraduate at Amherst College "sometime before the Punic Wars," and he fell under the sway of a professor named Philip Ives. There is a kind

of apostolic succession in fruit fly research, and Ives had trained with Sturtevant. Ives also happened to be stone deaf, and so had devoted himself exclusively to research and mentoring. Hall pursued the fly at the University of Washington for his Ph.D. and continued as a post doc at Cal Tech, in the lab of the celebrated fly man Seymour Benzer. He arrived at Brandeis in 1974.

Backed by so many lifetimes devoted to fruit flies, Hall argues that, despite the inroads made by the molecular biologists with their gene-splicing machines, the holy grail of the noble genetic quest is still right

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here on the floor of his office. "This [is] a little, haplessly tiny and ostensibly simple organism, but it's enormously complex," he says, holding up a container filled with flitting flies. "In fact, it is arguable that there is not one single area of biology that is not being studied in fruit flies." According to his friend Jonathan Weiner, author of *Time, Love, Memory*, a book on the history of fruit fly research, Hall's contribution to the

field has been his championing of the still-controversial cause of behavioral genetics—the belief that the fly's behavior is somehow encoded in its genes. To this end, Hall has studied courtship in detail, and can show you spicy videos of the fruit fly's elaborate mating ritual, detailing the role of odd genes such as *dunce*, which keeps older males from learning that a certain come-hither scent given off by young males doesn't lead to procreation. Hall is also fascinated with the fly's so-called clock gene, which, as he helped discover, allows it not only to keep track of the daily sleep-wake cycle but also to control the duration of the male's love song, a sound—in Hall's rendition—rather like a Harley going from first gear into fourth.

These particular flies here in containers on his office floor have been engineered with clock genes from fireflies, which produce a substance that turns a startling fluorescent green, allowing Hall's lab associates to track its presence. As an article he coauthored for *Science* magazine shows, the humble fly is bursting with clocks throughout its body—proboscis, antennae, thorax, the works—attuning it to the day-night cycle. When this clock gene was first found, skeptics doubted the existence of a similar trait in humans. Hall declared that bullshit. Or, more exactly, *[Continued on page 90]*



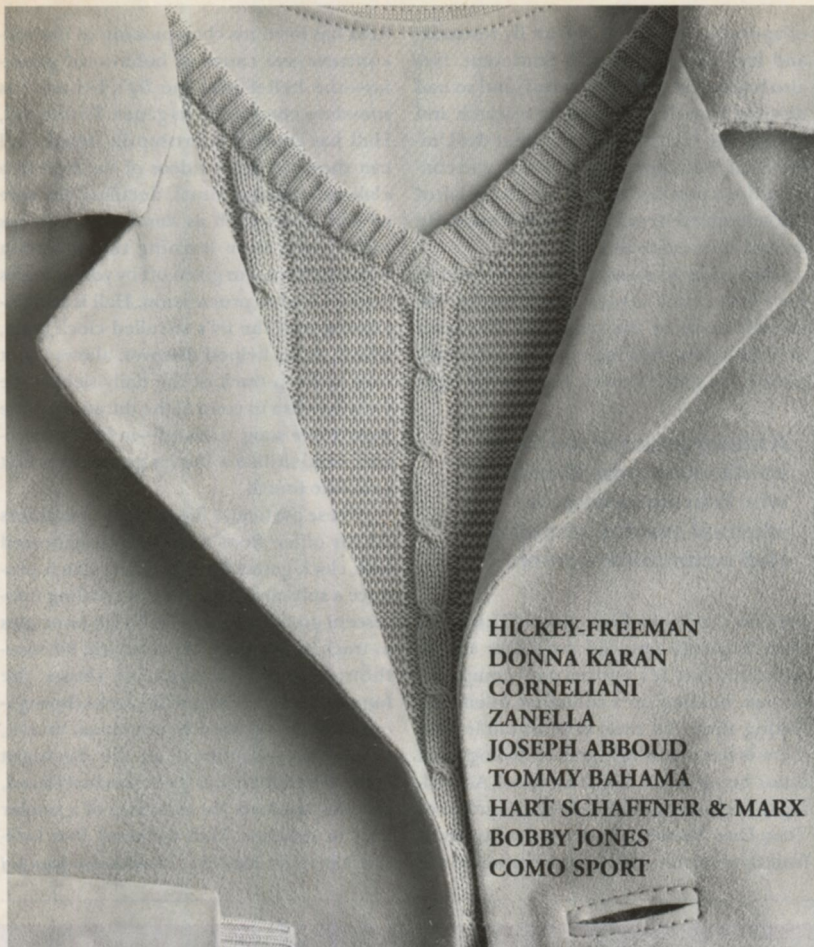
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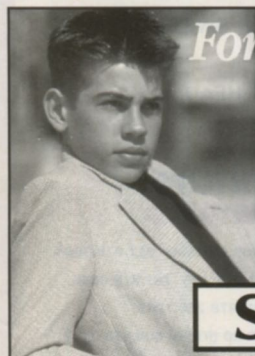
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Ivory Tower *[Continued from page 89]*

"boooooollshit." He instinctively knew there were parallels between his beloved fruit flies and us. And, sure enough, a cluster of Utah families popped up whose members routinely feel sleepy long before nightfall.

Hall is generally alive to the connections between species. In pointing out, for example, that male fruit flies get turned on by a multiplicity of female stimuli—visual, olfactory, aural—he stops himself. "Sound familiar? When a guy gets excited, it's her ass, her tits, her legs, her perfume."

Hall might have done the conventional thing and fluttered along with his fruit flies until retirement if his father hadn't taken him to Gettysburg during a family reunion back in the summer of 1983. His father had been a political reporter for the Associated Press, covering the Senate, policy debates, and presidential campaigns with a great passion for the American experience. Like his son, Joseph Hall also had a photographic memory. Looking over the battleground, hearing his father tell the tale of the fighting, Hall was seized by a single thought: "The North could have

Hall might have fluttered along with his fruit flies until retirement if his father hadn't taken him to Gettysburg during a family reunion.

lost!" After all, the Union soldiers had been forced to withstand assault after assault from the relentless Confederate army, culminating in Pickett's famous doomed charge. They were all volunteers, and they were fighting for nothing more than the dream of freedom for black people they scarcely knew, and for the idea of a great, united democratic nation that scarcely existed. And, if the North had lost that battle, it might have lost the war, not because it was actually beaten, but because the South had simply exhausted the North's patience, defeated its will to fight. And, if the North had lost, then—well, then everything would be different.

This thought obsessed him, as certain powerful ideas tend to. Hall read everything he could find on Gettysburg, including Princeton historian James M. McPherson's Pulitzer Prize-winning *Battle Cry of Freedom*. Hall being Hall, for three straight years he flew down to accompany McPherson on an annual field trip to *[Continued on page 92]*



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the historic battlefield. Later, when McPherson couldn't give the Gettysburg tour to a large group of biologists who wanted to go, he suggested Hall lead it instead. "I probably over-prepared," Hall says bashfully. He treated the matter as a scientist would, with a slide-filled lecture and, out in the field, references to dozens of maps: "Now if you'll turn to page 43 and find the location marked 2..."

"Otherwise," he explains now, "nobody would have known where they were." The biologists came back buzzing, and McPherson asked for a copy of the materials. Meanwhile, Hall had been attending Brandeis historian David Fischer's course on the Civil War. Not just sitting in, but taking notes, bug-

Looking over the battle-ground, Hall was seized by a single thought: "The North could have lost!"

ging Fischer about minutiae. In another example of academia's genealogy, Fischer had once studied under McPherson. Finally, Fischer had Hall give the Gettysburg lecture. When that went well, he asked why Hall didn't teach a whole course on it.

He's done that for five years now. Leading a double life as fruit fly researcher and Civil War lecturer is exhausting. When he's teaching the course in the spring, he works from dawn until well after midnight. Hall says the variety keeps his batteries charged, and that it's fun to tackle a field where truth is deduced by inference rather than by experimental proof.

But it may be that he simply admires the conviction. He is certainly not above taking potshots at the suns in Boston's academic firmament, dismissing Harvard's biology department, for example, as "mediocre." It's part of his righteous indignation, his unwillingness to suffer fools or their folly. For all his glorious eccentricity, Hall rides on conviction, a cause, a purpose. To him, of course, fruit flies aren't just fruit flies. They're the key to the mystery of life. And Gettysburg is, in his telling, the turning point in the Civil War—nothing less than the crucial battle in the war for the soul of America.

At this moment in history, Brandeis needs conviction too. If the scientist Hall can find his in Gettysburg, perhaps Brandeis can find it in Hall. **B**