

hapless children, many of whom died or suffered enormously. It wasn't until the 1950s that Jonas Salk devised a method to render the virus incapable of causing disease while leaving it sufficiently intact to stimulate the body's immune system to generate a potent response against the live virus. After a rushed but successful government-backed test in 1954 on almost two million children, federal officials decided—under enormous public and political pressure—to swing into full-scale production of the vaccine.

But Salk's instructions for making vaccine were more recipe than engineering blueprint, and the several pharmaceutical companies engaged to mass-produce the vaccine had trouble scaling up the process. Remnants of live virus contaminated many batches, and in 1955, one company, Cutter Laboratories of Berkeley, California, sent out quantities of vaccine that infected hundreds of thousands of children, severely injuring almost 200 and killing at least 10.

Then came the inevitable lawsuit, captained by Melvin Belli, who fashioned a high-profile career making legal innovations in everything from tort cases to Hollywood divorces. The unwelcome novelty here, Offit complains, is that although the Cutter jury concluded that the laboratory had acted in good faith and done nothing culpably wrong, the judge's instructions obliged them to impose damages on the company. Thus was born the legal notion of no-fault liability.

The result, according to Offit, is today's punitive legalistic culture, in which the minutest dangers, real or sometimes imaginary, blossom into multimillion-dollar payouts, and the quest to eliminate risk, far from making medicine safer, stifles innovation and keeps promising treatments off the market. But this grandiose contention doesn't hang together: Offit's own review of legal history shows that the Cutter decision fits into an evolution of liability law that started centuries ago and continues to this day.

Offit also inveighs against bad science in the courtroom, citing among several examples the case of an effective vaccine for Lyme disease that was

withdrawn from the market in 2002 after the manufacturer came under legal attack on extremely dubious scientific grounds. Lawyers browbeat juries into blocking life-saving medicines! It's a good punch line, with enough truth in it to warrant intelligent scrutiny. But Offit, having praised the Cutter jurors for evaluating the scientific evidence carefully, now wants somehow to blame them for the increasingly irresponsible decisions of their successors.

Today's litigious society is surely a remarkable phenomenon, but the Cutter incident is at most a small element in a plot vaster than Offit's book can handle. As it happens, the *Journal of the American Medical Association* published a study on October 12, 2005, concluding that among the many factors making flu vaccine production commercially unattractive, legal liability issues represent only a minor nuisance. It may well be true, as Offit asserts, that the pharmaceutical industry is reluctant to spend money looking for new vaccines—but it apparently has limitless dollars available to create and market pills that help middle-aged men get firmer erections. Something's out of whack here, and you can't pin all the blame on nefarious lawyers.

—David Lindley

## The Science of Life's Clockwork

AS A BOY, CURT RICHTER LOVED to tinker with clocks and locks, dismantling and reassembling them by the hour. His curiosity about how things work and his finely honed mechanical skill ended up serving him well: Dur-

ing some six decades at Johns Hopkins University's medical school, from graduate student in 1919 to emeritus professor still doing lab work in the 1980s, Richter made a series of pioneering discoveries, most notably about the internal clockwork that regulates behavior. In this conversationally written book, Jay Schulkin, a research professor of physiology and biophysics at Georgetown University, sur-

**CURT RICHTER:**  
A Life in the  
Laboratory.

By Jay Schulkin.  
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veys Richter's wide-ranging accomplishments and offers an informed perspective on his scientific legacy, though without providing much detail on his life outside the lab.

"Before Richter, there was a paucity of research investigation on animal activity," Schulkin writes. The few early researchers in biological rhythms had focused on plants. But as a Ph.D. student, Richter constructed rat "mansions," each with a central room, plus separate chambers for eating, drinking, running, climbing, burrowing, gnawing, and other specific behaviors. He hooked up devices to record the animals' every movement, which revealed cyclical patterns of behavior as well as sequential relationships between different behaviors, such as eating and resting. In his dissertation, *The Behavior of the Rat*, published in 1921, Richter asserted that innate mechanisms—not external influences—control behavior.

Richter soon applied his findings to humans by documenting cycles in illnesses, both mental and physical. He recognized that symptoms often wax and wane predictably at different times of the day, month, and year, a finding with important implications for treatment. Today's widely accepted recognition of seasonal affective disorder, with its depressive states that worsen during winter's short days, arguably grows out of Richter's work.

Having hypothesized the existence of an internal clock, Richter set about finding it. In the 1960s, he succeeded. The master clock that regulates daily and other biological rhythms in mammals, he wrote, is located in the brain's hypothalamus. Although surgical instruments of the time didn't allow him to pinpoint the clock itself, later scientists confirmed Richter's finding with more advanced tools. They identified a tiny cluster of timekeeping cells within the hypothalamus, which are activated by light signals transmitted from the retina via a specialized nerve pathway.

Richter's studies weren't limited to biological rhythms. In the 1940s, he explored what came to be called "learned helplessness." He found that wild rats immobilized even for a short while in a secure grip or in a bag wouldn't struggle when placed in a

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swimming tank. Having lost “all hope of escape,” he wrote, they simply let themselves drown. This research grew out of public-health efforts to exterminate rats in urban areas, though Richter thought it might also help explain sudden death in humans suffering extreme shock or fear. Richter also found that diets lacking salt, protein, fat, and other nutrients triggered hungers for those substances; and he explored nerve pathways that control motor reflexes in different mammals. He also developed techniques to assess spinal damage in American soldiers wounded in World War II, based on skin resistance and perspiration.

The author or coauthor of some 250 scientific papers and two books, Richter continued his lab work into his nineties. He received honorary degrees from the University of Chicago, Johns Hopkins University, and the University of Pennsylvania, and was nominated for a Nobel Prize. When he died in 1988, at 94, he was eulogized as a giant in his field, or, more precisely, his fields—specialists in several disciplines now laud him as a founding father. As Schulkin suggests, Richter dedicated his long life to the pragmatic tradition of American inquiry exemplified by Benjamin Franklin and Thomas Jefferson.

—Lynne Lamberg

## Skinner's Utopia

THE AUTHOR OF THIS interesting but oddly structured book set out to find an experimental community that embodied the model depicted in B. F. Skinner's novel *Walden Two* (1948). What she found were several mostly rural communities that tried, with every good intention and in a variety of ways, to institute a behaviorist way of life. But most failed. Even if they managed to survive, their success was almost a measure of the distance they had traveled from Skinner's initial blueprint.

Skinner, a longtime professor of psychology at

Harvard University, developed his theory of behaviorism—the teaching and conditioning of human behavior through positive reinforcement—starting in the late 1930s, while at Indiana University. In *Walden Two*, he imagined a society founded on his theory of behavioral psychology. Although the theory's outlines were clearest in the fictional Walden's schools, which used positive reinforcement as an incentive to learn, the entire community was organized to stimulate the most cooperative and socially useful behavior.

Hilke Kuhlmann, an assistant professor of American studies at the University of Freiburg, Germany, opens with a critical exploration of Skinner's novel and his later book *Beyond Freedom and Dignity* (1971). She reprises many familiar criticisms of behavioral psychology, but also adds some compelling notions about characters in *Walden Two*. She goes on to suggest that Skinner himself is to blame for the failure of many of the *Walden Two*-inspired experiments, in part because he never addressed such matters as the basically undemocratic nature of his planning system. Kuhlmann depicts Skinner as a social philosopher fascinated by the theory of community founding but uninterested in the reality. What she doesn't explain is his novel's odd reception: Published in 1948, it became popular only in the 1960s.

Kuhlmann talked with participants from a number of so-called intentional communities, primarily in the United States, and includes several of the interviews verbatim in an appendix that constitutes almost a third of the book. She provides capsule histories of many of the communities, recording their proximity to or drift from Skinner's ideal. In the case of Los Horcones, a successful community in Mexico founded in 1973, she concludes that strong, charismatic leadership accounts for its longevity. Yet, in a curious footnote, she relates that her own hostility toward behaviorism prompted residents there to “break off all communication.” So her information remains incomplete.

The community given the most attention here is Twin Oaks, founded in 1968 in Charlottesville, Virginia. The history of Twin Oaks—the most successful and long-lived of the *Walden Two* commun-

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