

breaks out. The defenders claim greater perceptual acuity and explain away all findings to the contrary. The attackers finally gather enough counterevidence, and the original finding is dismissed. Gratzner, a British biophysicist and frequent contributor to *Nature*, calls this insistent embrace of an untenable hypothesis “communal derangement”; physicist Irving Langmuir called it “pathological science.”

Around 1900, for example, the distinguished French physicist René Blondlot announced the discovery of “N-rays”: nearly imperceptible electromagnetic radiation that passed through quartz but not through water. Scientists all over Europe repeated his experiments. Some saw the radiation and made further claims—one announced that N-rays heightened the sensitivity of the human retina—but others couldn’t detect it. N-ray defenders derided the critics as insufficiently perceptive. “If N-rays can only be observed by rare privileged individuals,” responded one critic, “then they no longer belong to the domain of experiment.” Finally, Blondlot claimed to see N-rays even after a colleague had removed an essential part of the experiment. N-rays disappeared from physics.

*The Undergrowth of Science* assembles case studies in pathological science: Groups of growing cells supposedly emit radiation. Changes in an animal’s body are inherited by the animal’s offspring. Implanted monkey prostate glands rejuvenate aging men. Disagreeable inherited traits, from imbecility to alcoholism to criminality, are abolished by sterilizing the people who inherited them. Radiation given off by menstruating women kills microorganisms. Fusion, the energy source of the Sun, is reproduced in a jar.

None of these case studies rose to outright fraud. Instead, they resulted from a very human combination of ambition, overcommitment to a dubious investment, hero worship, mass hysteria, and an aversion to being wrong, especially in public. Scientists, Gratzner observes, “are as much a prey to human frailty as anyone else, and their capacity for unbending objectivity is circumscribed.”

Pathological science remains with us—fusion-in-a-jar dates from the late 1980s—but it can be difficult for nonscientists to recognize. Gratzner’s cases seem like the usual

science news that first sounds unreasonable and then turns out to be right or wrong, either one. Throughout history, scientists have successfully defended marginal data, and theories that sounded silly have proved revolutionary. And, though Gratzner explains the experiments thoroughly and clearly, the general reader doesn’t know the principles that make, say, radiation from growing cells just plain impossible. Perhaps such principles are uncodified and unspoken. If so, readers have to take a lot on faith.

Still, they’re going to like this book. The writing is elegant and unusually intelligent. Science and politics are credibly interwoven. And the hapless scientists, clinging to their theories as the counterevidence mounts, come across as at once terribly weird and terribly normal.

—ANN FINKBEINER

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**ONE GOOD TURN:**  
*A Natural History of the  
Screwdriver and the Screw.*

By Witold Rybczynski. Scribner.  
173 pp. \$22

When the *New York Times Magazine* asked for an essay on the best tool of the millennium, Rybczynski settled on the humble screwdriver. *One Good Turn* recounts his broadening gyre of historical research and, in the process, reminds us that extraordinary stories sometimes lurk behind ordinary things.

A professor of urbanism at the University of Pennsylvania and the author of *Home: A Short History of an Idea* (1986), Rybczynski begins with a look at the cursory lexicographical attention routinely paid to the word *screwdriver*, proceeds in search of the origins of the tool earlier generations called *turn screw*, and then, perhaps more important, concentrates on the screw. “The screwdriver is hardly poetic. . . .” he writes. “The screw itself, however, is a different matter. It is hard to imagine that even an inspired gunsmith or armorer—let alone a village blacksmith—simply happened on the screw by accident.”

The screw thread is not, he explains, a spiral but a helix, “a three-dimensional curve that twists around a cylinder at a constant inclined angle.” The earliest known

helix was the water screw developed in the third century B.C., probably by Archimedes: "Only a mathematical genius like Archimedes could have described the geometry of the helix in the first place, and only a mechanical genius like him could have conceived a practical application for this unusual shape."

The innovation most of us take for granted, the cruciform-shaped, socket-headed screw, was patented and marketed by Henry F. Phillips in the 1930s but essentially invented in 1907 by a Canadian, Peter L. Robertson. By enabling machines to drive screws, the socket-headed screw dramatically improved assembly line efficiency, especially at Ford Motor Company, and opened the way for the robotic-driven assembly of machines.

"Mechanical genius is less well understood and studied than artistic genius," Rybczynski observes, "yet it surely is analogous." The kitchen-drawer screwdriver has a lineage going back to Archimedes and perhaps beyond, one every bit as grand as any tradition taught in fine arts classrooms. Though it slights the role of screws in cultures other than European, *One Good Turn* is a wonderfully researched, written, and illustrated book, a pocket model of superb material-culture research.

—JOHN R. STILGOE

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**THE DRAMA OF EVERYDAY LIFE.**

By Karl E. Scheibe. Harvard Univ. Press. 281 pp. \$24.95

**LAW IN BRIEF ENCOUNTERS.**

By W. Michael Reisman. Yale Univ. Press. 225 pp. \$27.50

University of Pennsylvania sociologist Erving Goffman (1922-82) fashioned a career out of the minutiae of human conduct. In such books as *The Presentation of Self in Everyday Life* (1959) and *Behavior in Public Places* (1963), he meticulously analyzed the rhythms of conversation, comportment in elevators and libraries, the postures of models in advertisements, and other matters once deemed too meager for scholarly attention. The field he pioneered is now flourishing, with studies of wafer-thin behavior—

"The Effects of Staring and Pew Invasion in Church Settings"—multiplying faster than clones of the Goffmanesque sitcom *Seinfeld*. From different angles, these two books by Goffman disciples cleverly summarize and analyze the sociology of the commonplace.

Scheibe, a psychology professor at Wesleyan University, sees daily life as drama. "Insofar as we truly live," he writes, "we cannot keep from acting." He considers the transformative nature of human interactions, the shifting roles of actor and audience, and the players' tendency to adhere to the appropriate script—shouting at football games but not at golf matches, for instance. He also ponders why we undertake some performances sans audience. Whereas eating is "always and everywhere an occasion for social gatherings," he observes, "the act of defecation is almost always solitary," for, in Scheibe's lofty formulation, "bowel movements remind us of our finitude, our inexorable ties to the soil, even though as philosophers we may pretend to eat only clouds."

The drama of the mundane is a capacious concept, and it makes for a meandering but entertaining book. In one chapter, Scheibe asks what ever happened to schizophrenia, a relatively common psychiatric diagnosis through the 1970s that is now much rarer. He believes that patients who once would have been labeled schizophrenic now are given other diagnoses, especially multiple personality disorder and post-traumatic stress syndrome. Schizophrenics traditionally required years of treatment in state-supported mental hospitals, an impractical prescription in an era of deinstitutionalization, whereas the newer diagnoses generally require only outpatient treatment. Psychiatrists, it seems, avoid diagnosing what they cannot treat. "Now that the stage settings have been struck," he writes, "the actors who populated the wards are no longer controlled by the settings' mythical constraints and are now walking on other boards."

Where Scheibe sees drama, Reisman, a professor at Yale Law School, sees "microlaw": an informal system that prescribes proper behavior and punishes violations. He considers, for example, the conventions for