

BOOKS & ARTS

The younger Oppenheimer

Frank Oppenheimer founded the San Francisco Exploratorium: his charisma and passion for science education made him as influential, if not as famous, as his brother, explains **Robert Crease**.

**Something Incredibly Wonderful Happens:
Frank Oppenheimer and the
World He Made Up**

by K. C. Cole

Houghton Mifflin Harcourt: 2009.

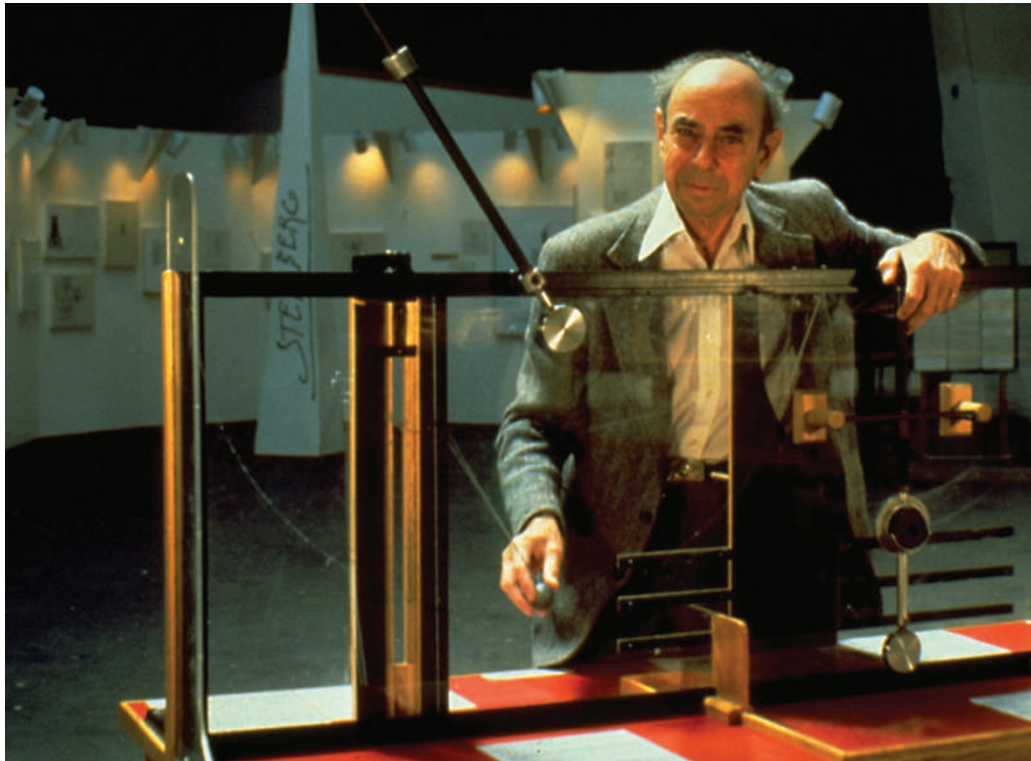
416 pp. \$27

Alfred Russel Wallace wrote that Charles Darwin never lost “the restless curiosity of the child”. One could say the same of the experimental physicist and educator Frank Oppenheimer (1912–1985), younger brother of theoretical physicist J. Robert Oppenheimer, whose life has been far more documented. Like Robert, Frank was involved in leftist politics in ways that damaged his career; unlike Robert, Frank’s relentless enthusiasm allowed him to forge a dramatic comeback. His masterpiece was the San Francisco Exploratorium in California, through which he influenced the lives of countless people.

K. C. Cole, a journalism professor at the University of Southern California in Los Angeles, is one of those people. In the early 1970s, the magazine *Saturday Review* assigned the fledgling writer — who says she had “no interest in science whatsoever” and thought an accelerator was a gas pedal — to cover the Exploratorium. She was transformed by meeting Frank, who struck her as “a kind of Yoda” and helped to launch her career as a science writer. Her enthusiasm is the reason that her book *Something Incredibly Wonderful Happens*, although not deep or probing, is affectionate and evocative.

Frank and Robert were born in Manhattan, New York, to a “little royal family” whose cultivated parents collected art and sent their children to private school. In 1936, while a graduate student in physics at the California Institute of Technology, Frank and his wife Jackie joined the Communist Party; they quit, disenchanted, in 1940. During the Second World War, Frank worked on the Manhattan Project that developed the atomic bomb, watching the blinding explosion of the first nuclear test alongside his brother, who was director of the Los Alamos lab in New Mexico. After the war, Frank studied cosmic rays at the University of Minnesota. In 1949, he was forced to resign and was blacklisted, unable to obtain employment in an academic institution.

Unfortunately, Cole glosses over these



Frank Oppenheimer brought a “rancher’s aesthetic” to the Exploratorium science museum.

years, relying on familiar sources of sometimes doubtful reliability. She does not explore Frank’s membership of the Communist Party, calling it “civic minded” and accepting at face value his remarks that it was a “casual thing”. Oddly, she also glosses over his scientific work. Although she says that Frank found cosmic rays “truly fascinating” and cites an obituary that calls his articles “landmark research”, she doesn’t even tell us the papers’ titles.

Unable to find a job in physics, Frank retired with Jackie in 1949 to an isolated cabin near Pagosa Springs, Colorado, to become a farmer. A “gentle Jewish intellectual from Manhattan”, Frank initially did not even know how to turn grass into hay. He doggedly set out to teach himself, selling an inherited Vincent van Gogh painting to pay his expenses.

Cole is more at home writing about a character in an intimate setting than as an actor on a scientific or political stage. She gives us vivid portraits of Frank delivering newborn animals in the snow, “pulling on the legs of the emerging calf while Jackie read instructions out loud from a veterinary manual”. And she recalls

a neighbour telling her of how Frank once became incensed by a cow’s refusal to enter a pen and began to curse wildly, his expletives echoing back and forth across the valley.

In the 1950s, Frank became a respected community member, an elected representative of local cattlemen and a teacher at the local high school. He galvanized the childrens’ interest in science, making them dissect farm animals and disassemble car engines at the scrapyard. To the bafflement of Colorado officials, students from Pagosa Springs — until then a little-known farming community — began raking in prizes at state science fairs.

In 1959, Frank was offered a teaching job at the University of Colorado, where he thrived. The enthusiastic reception to a talk he gave in 1966 on science and education set him on the track to creating the Exploratorium, which opened in 1969.

Cole’s real subjects are the early years of the Exploratorium and its charismatic, maddening creator. The museum was always a work in progress, having a “rancher’s aesthetic” —

exhibits were donated and jerry-built such that a foot-pedal lathe became an electricity generator, or a traffic light became an optics lesson. Events included the dissection of a pig's eye. Children played truant to hang out there, teenagers got high there because of all the perceptual stimulation and adults found it exotic and magical.

Cole writes of her own interactions with Frank. Even simple encounters such as eating a meal could turn into an adventure: he once fashioned a gyroscope for her "out of pats of butter and a bread plate to explain precession". The book strings together many vignettes of Frank in action. It does not matter that his ruminations on life are of uneven value and varying coherence — it captures important parts of the man.

Cole charts the encroaching bureaucratization of the Exploratorium, and the final weeks of Frank's life as he died of cancer. The touching

death scene is disrupted when, to the horror of his wife and children, Frank's mistress arrives to profess her devotion — just one of several irruptions of libidinal chaos.

The vividness of this scene whets our appetite for more insight into the 'royal family' itself. Robert married an alcoholic and was himself an adulterer; his daughter committed suicide. In her book, Cole tells us little of Frank's children, not even when they were born. The Oppenheimer family, we suspect, has yet to reveal all of its dark sides. But by shunning a traditional biographical tapestry, Cole successfully, and at times movingly, limits her focus to Frank's infectious passion for science. ■

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and he and his staff were called cranks.

Given Burton's intent of "poking the establishment in the eye", he might have expected some abuse. But in such cases the best strategy is to stick to one's guns. Alas, Burton is not so thick-skinned. He reveals himself as the insecure country cousin awed by the sophistication of established scientists and their fancy dinner parties. He swayed towards them, minutely measuring the distance between the riverbanks lest he offend the mainstream. Burton tried to replicate the US establishment in Canada, but he was often outbid and exploited by opportunists who used *Perimeter* as a trampoline to boost their US careers.

By the time *Perimeter* matured, five years later, the divide between the quixotic first hires and the new wave was painfully evident. The openness of the early days was replaced by Princeton-style hush-hush and invitation-only meetings. The idealists openly confessed that they wished they could find another benefactor, to "start anew and this time do it right". Something had gone wrong: the sought utopia had become a dystopia.

Scientific originality has become big business: being anti-establishment sounds great. Yet few want to take the risks necessary to achieve it. Originality is encouraged in public pronouncements only to be punished when practical decisions are made. Perhaps *Perimeter's* tale proves that there is no recipe for original science: it happens anarchically and by accident, in spite of, rather than because of, scientific institutions.

Burton had his heart in the right place at the outset and we should have some sympathy for him. And *Perimeter* was a success on many fronts: the building is gorgeous, its bistro is outstanding, the administrative staff enlightened. But the institute has failed to attract good students; its outreach activities have become uninspired; its rebellious streak is now all but gone. Our sympathy for the director dissipates when he fails to shoulder any blame. Add to this the book's purple prose and weak iconoclasm and *First Principles* is bound to irritate as much as disappoint.

Eventually *Perimeter* became a scientific institute just like any other. In 2007, Burton left. ■

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Howard's end at Perimeter

First Principles: The Crazy Business of Doing Serious Science

by Howard Burton

Key Porter Books: 2009. 288 pp.
Can\$24.95

The goal of *First Principles* is good: Howard Burton, founding director of the Perimeter Institute for Theoretical Physics, relates the setting up of the institute in Waterloo, Ontario, Canada, following a donation exceeding Can\$100 million by Mike Lazaridis, creator of the BlackBerry, in 1999. But the book's self-congratulatory tone is a major snag. As reality increasingly conflicts with hype, Burton's account evolves into a sad tale.

The institute's aim was to "make waves, big waves", and it got off to a promising start. Burton — a youthful outsider who had only just finished his physics PhD — went about his job with maverick flair, challenging the scientific establishment, attacking its tribalism and allergy to innovation. Here was an opportunity to do things differently: to promote originality, to flatten hierarchy and empower the young researchers actively driving the field. It sounded utopian, but it was worth a try.

Unfortunately, reality failed to comply with Burton's plan. The best days of this haven of free-thinking came while it was still a 'theoretical' theoretical physics institute — before the scientists arrived. The anecdotes Burton narrates in the chapter 'The Trouble with

Physicists' ring hilariously true. But there was also a fatal flaw in *Perimeter's* concept — scientists tend to define 'originality' as what they personally do. Soon the institute's quest for novelty became hijacked by the agendas of the field's usual culprits, and Burton himself came under attack from them.

"You don't go into the woods to find a lumberjack to run a scientific institute," one senior Canadian physicist jibed, commenting on Burton's past as a 'failed' physicist. "Why did he hire all those losers?" asked another when faced with Burton's first batch of appointments. In some circles *Perimeter* became known as the 'institute of lost causes' in response to Burton's promotion of off-the-beaten-track research,



Howard Burton outside the Perimeter Institute.