Nasty physics

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At the Heart of the Bomb: The Dangerous Allure of Weapons Work. By Debra Rosenthal. *Addison-Wesley: 1990. Pp.244. $18.95.*

THE activities that make the American nuclear arsenal are carried out at nine major facilities in the United States, but the key activities — the conception and design of the weapons — are conducted in three places: at the Livermore National Laboratory, in California, and at the Los Alamos National Laboratory and the Sandia National Laboratories, both in New Mexico. Scientists and engineers at Livermore and Los Alamos design the explosive guts of nuclear warheads — called 'physics packages' — and their counterparts at Sandia, which is located inside the Kirtland Air Force Base, convert the packages into weapons, imbedding them in configurations that will deliver and detonate them. Each of the laboratories is a GOCO, a government-owned, contractor-operated enterprise. The American Telephone and Telegraph company runs Sandia for a dollar a year; the University of California manages Livermore and Los Alamos, for some six to seven million dollars a year, a tiny fraction of the university's eight-billion-dollar annual budget. Each laboratory employs 8,000 people, all civilians, all directly or indirectly involved in the creation of weapons of mass destruction.

In 1984, Debra Rosenthal, then a junior member of the political science faculty at the University of New Mexico, set out to discover how the people at Sandia and Los Alamos live with such work and what sense of social responsibility they have about it. Ultimately, she conducted 260 hours of interviews with 85 people, about half from each facility, thereby obtaining the material that forms the base of *At the Heart of the Bomb*. Rosenthal holds confidently that the people she describes "represent the range of opinion within the weapons laboratories, if not the precise distribution." Perhaps, perhaps not: she appears to have made some attempts to meet the requirements of survey research, but the attempt was not very vigorous (more than one third of her interviewees volunteered). Nevertheless, she got people to talk, and she straightforwardly reports what they said, framing their attitudes in the context of their personal backgrounds, experiences and apprehensions of the Cold War. The result is a fascinating and revealing portrait of the hearts and minds of a select group of people who derive their livelihood — and more — from the core of the nuclear weapons culture.

Outwardly, there is little distinctive about Sandia employees, many of whom live in Albuquerque, or about Los Alamos staff, whose community is not much different from any small town that is dominated by a single industry. Rosenthal writes of Los Alamos, whose wartime citizens included J. Robert Oppenheimer, Edward Teller and Enrico Fermi: "No egghead eccentries are visible on Trinity Drive nowadays. In their stead are normal-looking fellows in sensible cars who obediently stop for panting joggers in warm-up suits." A kind of regular, workaday quality characterizes the bomb-making enterprise. Some of Rosenthal's respondents acknowledged that their work has unpleasant features but preferred to shrug them off, pointing to how their jobs provide salaries or research funds that were too good to pass up. A man called Walt had decided in junior high school that designing weapons would be a safe haven from being sent off to war and returning in a body bag. He was just a "voyager in space", he told Rosenthal, adding, "I just happen to be in the century, and I'm trying to get through it. I really have no control over it."

A number of scientists at Los Alamos and even Sandia do basic research that is unrelated or only indirectly related to bomb design. Although Rosenthal neglects to provide either an overview of the research programmes at either facility or how the scientific staff is distributed among them, she reports that the nuclear weapons groups are relatively small. Elsewhere in the laboratories, their members are known as bombheads, scientists who identify with the weapons, get caught up in their fascinating technical details. Members of the bomb design branch at Los Alamos call their research 'nasty physics', but absorbing physics it is nevertheless. Unquestionably, weapons design poses scientific challenges that are sufficiently compelling to quell moral doubts.

Some of the weapons scientists approach their work with untrammelled pleasure — some might say unseemly joy — thrilled by the scientific chase and driven by a hunger for Promethean accomplishment. Karl, a master of thermonuclear weapons design, boasted to Rosenthal of "nine Nevada shots with my name on them." Although he had seen the films and the instrument reading of test explosions, he said that he still wanted to "feel the heat", adding, "This is the most there is; this is the closest you get to playing God." Karl noted that "stars and bombs are a lot alike, but you don't get to design a star and see if it'll go supernova when you want it to."

Karl likes to tell peace activists that "if God hadn't loved bombs, he wouldn't have invented [the] Japanese", but Karl's callous defence of nuclear weapons work appears to be anomalous. Rosenthal's interviewees advanced a variety of justifications for their work, most commonly a secular concern for national security, a religious anti-Communism, or some combination of the two. Virtually all held to the position that they were no less moral about nuclear weapons or more responsible for them than the president, the congress and the American people, who by and large have wanted such arms, supported by policy and taxes the system that produces them, and benefited from the protective umbrella that they provide.

Only eight of Rosenthal's respondents said that they had ever wanted to leave their jobs. Even then, the goads to departure were often not moral objection but dissatisfaction with the irritations of security rules, the bleakness of the Sandia ambience, or the scientific isolation that comes with involvement in classified research. Still, reasons of conscience have taken some from the laboratories, including Tom Grissom, a 15-year veteran of Sandia, who in a six-page essay written to explain himself to his children and friends, declared, "I prejudge our guilt to be the same as that of all the good Nazis who obediently followed orders." Rosenthal seems to sympathize with Grisson's point of view, neglecting to analyse the numerous differences, moral and otherwise, that distinguish nuclear weapons designers from, say, Adolf Eichmann. However, she does seem to recognize that the problem Grissom confronted resides rather more in the machinery of the arms race than it does in any individual moral complicity. She notes that Grissom's simple personal solution appears "hopelessly idealistic" to the workers in the laboratory, people who "feel themselves enchanted by and trapped within a huge mechanism that promises to function smoothly with or without them." □

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