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Thomas C. Lassman, *Edward Condon's Cooperative Vision: Science, Industry, and Innovation in Modern America*, Pittsburgh: University of Pittsburgh Press, 2009, 320 pp., \$49.00 (hardcover).

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In 1934, Edward Uhler Condon, amid supervising graduate students and crafting a research program on atomic spectra, found time to publish an article in the *United States Naval Institute Proceedings*. “Food and the Theory of Probability” explained, from the standpoint of probability theory, something naval commissarymen had long known: to feed double the number of people, you need not *quite* double the recipe. “We interpret the effect as due to the statistical fluctuation in the amount of food desired by a particular man from day to day,” Condon wrote, leading into a detailed and technical treatment of the probability calculations that substantiated the folk wisdom encoded in the *Navy Cook Book* (Condon 1934).

Condon, then a thirty-one-year-old associate professor of physics at Princeton University, was a rising academic star. His skill in quantum mechanics, acquired at the foot of Arnold Sommerfeld in Munich, made him much coveted by American universities scrambling to keep abreast of the latest developments in physics; he spent much of the late 1920s and early 1930s fending off competing job offers. However, as his short-but-sincere essay on the naval mess shows, Condon’s intellectual thirst could not be slaked by the abstract problems of quantum physics alone. He took distinct pleasure in turning his skillset to practical ends.

Nor would Condon be hemmed in by conventional notions of an appropriate career trajectory for someone of his talents. Just three years after publishing the piece for the Naval Institute, he would abandon the security of his Princeton professorship to become associate director of the Westinghouse Electric and Manufacturing Company research laboratories. These peregrinations, intellectual and institutional, get thorough treatment from Thomas C. Lassman in *Edward Condon's Cooperative Vision*.

The book is not a conventional biography of Condon, whose childhood, education, and career are covered in chapter 1. Lassman’s self-described aim is to “combine biographical and institutional history” (xviii), and Condon is a starting point from which to launch an evaluation of applied and industrial research in mid-century America. The remaining chapters are largely organized around the institutional perches where Condon alit—often fleetingly—with Westinghouse taking center stage. Chapter 2 sets the scene by exploring how an incipient research culture emerged from the heavy industry of Pittsburgh’s steel mills, and chapters 3 and 4 trace Condon’s tenure at the Westinghouse research laboratories, implementing his titular cooperative vision within that context.

Condon’s cooperative vision amounted to a conviction that fundamental research could and should be pursued in industry in a way that blended seamlessly into matters of abstract academic interest. Historians have identified similar attitudes in mid-century America, most prominently at AT&T’s Bell Laboratories, which outpaced most universities in contributions to basic physics and in accolades recognizing them. But Bell was *sui generis*, and so Lassman’s focus on Westinghouse broadens our perspective on this era substantially. It develops insight into a site that was more representative than the Bell oasis of most mid-century American industrial research. Notably, although Condon established a successful, academic-style postdoctoral program,

Westinghouse's higher-ups, squinting at the farther reaches of Condon's vision, dashed his dreams of building a world-class cyclotron to attract the best young nuclear physicists to Pittsburgh.

The story moves into World War II in chapter 5, following Condon as he helped coordinate Westinghouse's contributions to nuclear and radar research, made a characteristically brief stop at Los Alamos before consternation with General Leslie Grove's secrecy regimes compelled him to resign, and returned to Westinghouse to plan its postwar footing. Following the war, Condon executed another major career transition, enlisting in the structures of government science he had served briefly during the conflict by accepting a post as Director of the National Bureau of Standards. The story closes in chapter 7 with the left-leaning Condon's exit from government employment in the face of ideological pressure in the McCarthy era, his brief return to industry at Corning Glass Works, and his final professorial appointment at the University of Colorado.

By tracing Condon's winding career trajectory, Lassman examines the fortunes of his vision of a cooperative relationship between academia and industry, fundamental and applied research. The qualified success Condon achieved does much to reveal the malleability of industry's attitude toward fundamental work in the mid-twentieth century—and its limits. Despite a varied career that placed him in positions of tremendous influence, Condon's success was always partial; he never quite saw his vision implemented in full.

That partially fulfilled quest is the thread that runs through the book, which therefore relies less on the biography of Condon than it does on the chronicle of the institutions with which he intersected. This might disappoint some readers. Condon himself is a compelling character. He was brilliant, strongminded to the point of pigheadedness, perpetually dissatisfied, and a wizard at discerning the intellectual wonder of the mundane. Although we get glimpses of those characteristics, Condon the person does not jump off the page the way one would expect from a fuller biographical treatment. Nevertheless, this book stands out an invaluable and overdue examination of the decision-making processes that guided that guided industrial research during its most auspicious decades.

References

Condon, Edward U. 1934. Food and the theory of probability. *United States Naval Institute Proceedings* 60, no. 371: 75–78.