

Prologue

Every night thousands of men retreat to radio stations elaborately outfitted in suburban basements or tucked into closets of city apartments to talk to local friends or to strangers on the other side of the world. They communicate by speaking into a microphone, tapping out Morse code on a telegraph key, or typing at the keyboard of a teletypewriter. In the Internet age, instantaneous, long-distance, person-to-person communication seems ordinary. But amateur radio operators have been completing such contacts since the 1910s.

The hobbyists often called “hams” initially turned to radio for technical challenges and thrills. As the original form of wireless technology became more reliable and commonplace in the 1930s, ham radio continued as a leisure activity. This book examines why men in mid twentieth century America operated two-way radios for recreation and how the hobby shaped social and technical encounters. It primarily concerns the period after radio broadcasting became routine and before personal computing did. The hobby is still widely practiced, with more than 680,000 hams in the United States in 2000—more than ever before. While there may be many points of continuity between past and present ham radio, what follows is a historical analysis based on evidence from the 1930s to 1970s and aiming only to interpret events of that era.

To become an amateur radio operator required considerable skill, machinery, and time. The first hurdle was obtaining a license from the Federal Communications Commission (FCC) by passing a written examination of electronics theory and radio regulations and a hands-on test translating words into and out of Morse code. Once he earned an FCC-assigned call

sign, the hobbyist next had to either buy or build the equipment for his home station. A two-way radio station needed a transmitter, to generate and send out signals, and a receiver tunable over the particular frequency range the FCC reserved for amateurs. Successful communication depended on additional gear—from an antenna and headphones to diagnostic equipment and tools such as a voltmeter, oscilloscope, and soldering iron. This stockpile of devices demarcated the hobby space or “shack,” which took its name from the “radio shacks” that housed communication equipment on board ships and for military field operations.¹ Though shacks often were relegated to the basement, attic, garage, or other unrefined parts of a home, hams prized these territories set apart from domestic activities, completely devoted to radio. Postcards confirming individual contacts usually decorated the walls, along with any awards and the hobbyist’s FCC license. A large desk provided comfortable operating conditions, and shelves of manuals and magazines served as a technical reference library. For construction and repair projects, ideally a shack also contained a workbench. Assorted spare parts might be strewn about or stored neatly in bins, depending on the hobbyist (see figure P.1). In periods of tinkering with equipment that could stretch on for months, the ham resembled the stereotypical lone inventor. Then a flip of a switch and a spin of a dial brought the many voices of hobby radio rushing into the shack.

Dialing through the band of frequencies set aside for amateur radio unleashed a cacophony. Layers of voices, in different languages, competed with the staccato tones of Morse code, whose rhythm and strength varied according to the style of the human sender and the power of his transmitter. Only with precise tuning and some luck could a clear signal be isolated. Ham radio operators used streamlined language and repetition of key phrases to cut through static and background chatter. According to the standard procedures for initiating a dialogue, a call by licensee KB3DF requesting to talk with anyone available would be spoken as, “CQ CQ CQ, this is KB3DF calling CQ. Kilowatt bravo three delta foxtrot, calling CQ CQ CQ.” The code for a general call (“CQ”) might be modified to “CQ DX” to elicit a response from a distant station (“DX” being radio jargon for long-distance operating) or be followed by the call sign of another hobbyist when answering a specific person’s CQ. During the rush of a contest or when conditions were poor, conversations stuck to a dry exchange of data



Figure P.1

Bill Higgins, W0YDB, in his ham radio shack in 1968. Confirmation postcards, awards, a map, and his FCC-issued license covered the walls. Photograph printed with his permission.

about station location and reception strength. Under other circumstances, two hams might speak at length about their lives and hobby involvement, even if meeting for the first time. A contact ended with sending “best regards,” couched in the code phrase “73,” and declaring “over and out” before recording the date, time, operating frequency and power, and the other party’s license number in a log book that was subject to FCC inspection.

For all its technical trappings, ham radio thrived on social interaction. It differed from amateur broadcasting such as pirate radio and from pastimes focused on listening to commercially broadcast or shortwave radio because it included both transmission and reception. This produced real-time conversations (not necessarily comprehensible to non-hams), and random meetings “on the air” occasionally grew into friendships that continued by letters and further discussions via radio. Hobbyists who lived near each

other gathered in clubs or met informally for “eyeball contacts.” United by their recreational application of radio technology and distinguished by their electronics skills, hams sometimes described themselves as a “technical fraternity.” The number of amateur license holders in the United States—around 100,000 in the early 1950s, twice that by 1960, and 375,000 in 1979—was sufficient to sustain an intricate social network and a profitable niche industry. Yet radio hobbyists remained a minority and celebrated this as a sign of technical superiority.

Hams spoke of themselves as democratic and open to all who made the effort to learn radio theory and operation. The mid twentieth century hobby radio community, however, was remarkably homogeneous. The following chapters document the subtle but intentional process by which the community became intensely masculine—an overwhelming majority of hams were male, and the hobby culture played up the manliness of radio activities. Other demographic characteristics emerged from multiple contributing factors. That ham radio operators generally belonged to the middle and upper socioeconomic classes partly reflects how expensive it was to participate in the hobby. Men also improved their financial standing by using skills gained in the hobby to launch lucrative electronics careers. The education level and occupations of hams can be seen either as following from their class status or as following from their technical passions and then altering their class status. On average, a radio hobbyist completed more years of schooling than the non-hobbyist—after World War II this usually included some college—and he was far more likely to hold a job in a technical field. The military recruited hams for their radio skills, and military service gave hams further technical training and eased access to higher education under the GI Bill. In this way, technical inclination, recreation, education, skill, and employment reinforced one another to the extent that it is impossible to separate cause from effect when questioning their relationship to class. The racial homogeneity of hams lacks explanation beyond its socioeconomic connections. Statements of racial and ethnic identification among hams were rare, but polls confirmed that the white faces filling radio magazines accurately represented the ham population. The community discouraged all internal divisions except geographic ones, denouncing religious and ethnic radio clubs as “political” and therefore a potential hindrance to smooth relations with federal regulators.²

While the prospects for international communication created a great deal of excitement and anxiety about mid century ham radio, Americans dominated the hobby. In 1960, when more than 200,000 amateurs in the United States held licenses, Great Britain had the second most hams, with only around 9,400. Roughly half the world's countries then had less than 25 registered hobbyists each, and only 16 countries had more than 1,000 hams.³ These figures—compiled by a hobby magazine to inspire respect for the difficulty of contacting foreign operators—speak to the political, economic, and technical position of the United States as well as to the American enthusiasm for technology at mid century. Increased Cold War funding for military technology and the championing of electronics for strategic, productive, and recreational purposes supported the hobby. At the same time, the climate of secrecy and isolation prevalent during this period of global tension meant that hams who sought private, international ties provoked suspicion.

Nowhere did ham radio technology appear more out of place than in the suburbs of the 1950s. On a typical evening, families inside houses arranged in orderly developments, with neatly manicured lawns, gathered around television sets to watch light entertainment. A local ham disrupted this scene visually and electronically. Neighbors wrinkled up their noses at the strange-looking antenna mounted atop the hobbyist's house or attached to a tall tower poking out of his lawn (see figure P.2). Even when this “contraption” was out of sight, it was hard to forget about the ham down the block. Amateur radio operators, broadcast radio listeners, and television viewers all enjoyed recreation based on the wireless transmission of electrical signals. Interference occurred if a ham's transmission strayed from the frequencies designated for amateurs, or if a television or radio receiver picked up signals outside the broadcast frequency range. Without realizing it, a hobbyist chatting on the airwaves might produce a series of beeps and buzzes on the channel where his neighbor had hoped to find the night's baseball game on the radio. Sometimes pieces of a ham's conversation could be heard clearly on nearby television sets, drowning out the broadcast's sound and ruining the picture, too. These bizarre occurrences raised the ire and piqued the curiosity of those living close to radio hobbyists. It was a time when signs at some military bases warned, “Talk means trouble—Don't talk,” when Americans feared outside influences

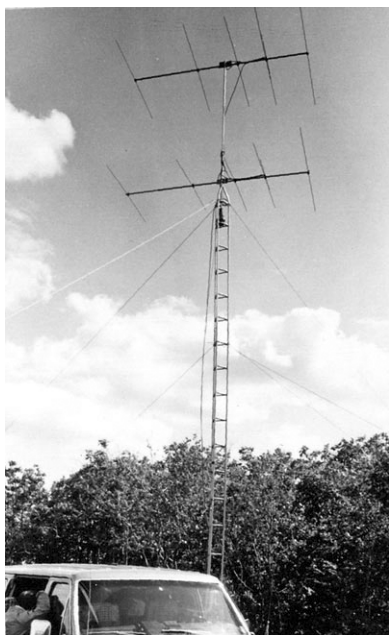


Figure P.2

Especially when mounted on a tall tower, a ham antenna conspicuously marked the home of a radio hobbyist. Printed with the permission of photographer Robert Walsh, WB3AMY.

and obsessed about the threat of communism.⁴ So why was the neighborhood ham sitting down in his basement talking to Russians? One hobbyist's wife reported that "all his friends quit speaking to him because he's ruined their favorite television programs" and claimed that her whole family had "become suspect and is shunned by polite society."⁵ Compounding the social rebukes, municipalities charged many hams with zoning violations related to "unsightly" antenna towers, and the FCC imposed operating restrictions and fines on amateurs caught interfering with commercial broadcasts.

The apprehensiveness of non-hobbyists about amateur radio was understandable. While most Americans witnessed the formidable technical realm of the military-industrial complex from the sidelines, hams were right in the thick of it. The hobby had an intimate relationship with electronics,

the showpiece technology of the period from World War II into the 1970s. This helped hams extend their leisure pursuits into hi-tech civilian and military careers. And hobby radio organizations persuasively lobbied the FCC to maintain a portion of the airwaves for amateurs because two-way radio had value as a strategic technology. All of which begged the question of whether anyone should be tinkering with such powerful devices in his spare time. Outsiders alternated between teasing hams for choosing an odd hobby and revering hams for their technical expertise. Hams were geeks with an adventurous side, who could be counted on to solve (and cause, sometimes) electrical problems; they were, in this sense, precursors to computer hackers.

Hams deliberately set themselves apart by developing a community and culture tied to radio technology. They articulated technical values, goals, and practices different from those of non-hams and used adherence to this way of thinking to judge group members. That is, radio hobbyists formed their own “technical culture,” a culture built around and establishing an ideology about technology. Studying a community defined by beliefs about technology highlights the creation and implications of technical culture. I hope that my presentation of the notion of technical culture through the example of ham radio will stimulate investigation into other technical communities and ultimately offer insight into the formation and function of the technical cultures that are so familiar to us that we take them for granted.

Ham radio existed within a larger category of technical hobbies. I point this out not to downplay that several qualities made it a truly unique pastime. Hams engaged in communication on a global scale, using equipment that rarely was seen outside of the military, subject to strict state regulation—the last of these aspects following directly from the first two. The consideration of radio hobbyists in the context of hobbyists who raced miniature airplanes, modified motorcycles, and built personal computers demonstrates the ways in which ham radio was exceptional as well as what it had in common with other activities. The book begins by defining the category of technical hobbies and explaining the motivations and experiences shared by people who took up technology for leisure. Later chapters trace how hams formed a community around a technology and crafted a particular image of ham radio, how the culture of hobby radio

affected the market for equipment, and the consequences that practicing ham radio had in hobbyists' relationships with employers, with the state, and with their families.

This is a text-based history. I did not have access to old audio tapes of on-air conversations, though over the years I have spent many hours casually observing in a ham shack. Given the huge number of longtime radio hobbyists, I contemplated conducting interviews as part of my research. But the rich documents hams produced allowed me to avoid the challenges of oral history, such as selecting representative informants and interpreting their comments in light of the fact that decades had passed since the events described. There is a small secondary literature on amateur radio, focused almost exclusively on the 1910s and 1920s. Susan Douglas perceptively chronicles early ham radio in *Inventing American Broadcasting*; several of the numerous histories of radio briefly mention the first hams; and Clinton DeSoto's 1936 *Two Hundred Meters and Down* provides an insider's technical history of amateur radio.⁶ These books gave me a picture of a quite different hobby than existed at mid century and allowed me to isolate potential roots of that difference, which helped guide my research through the primary literature. Most radio clubs published informal monthly or quarterly newsletters packed with local and personal information. Handbooks sold to hobbyists and the manuals that manufacturers included with equipment reveal the style of technical lessons (often interlaced with social lessons) pitched at hams. To understand ham radio's connection to the state, industry, and the public, I consulted government documents, trade literature, and general magazines and newspapers.

Hobby periodicals deserve a special introduction because they formed such a vital source of evidence for this study. *QST* and *CQ* were the leading monthly hobby magazines with national circulations in the 1940s and 1950s. *QST* (the title is code for "calling all members") debuted in 1915. As the organ of the American Radio Relay League, the main amateur radio promotion and lobbying organization, *QST* claimed to set out the "official" positions on hobby matters, though it had only a self-declared authority. *QST* tended to distance the League from any controversy and to present a united front, even when none existed among hams. *CQ*, a less authoritarian commercial publication begun in 1945, did not shy away from printing multiple points of view. These magazines were joined in 1960 and 1968 by

two more independents that became popular, *73* and *Ham Radio*. Together these periodicals reached a majority of hams. In the early 1960s, *CQ*, *QST*, and *73* had combined subscriptions that exceeded the number of licensed hobbyists in the United States by about 20%.⁷ This subscription tally double counts individuals who received more than one of the magazines but also includes libraries and clubs, where many individuals would have read a single issue. Perusing the articles, advertisements, editorials, and letters in hobby publications, I found the topics that mattered most to hams and the spirit that enlivened their pursuits.

No general account of the hobby can adequately convey the personal stories of the roughly one million Americans who operated amateur radios over the course of the twentieth century. I expect that this book will prompt diverse hams to speak up about their own experiences and how those may break from my analysis. If I succeed at least in convincing readers of the relevance of technical recreation, the addenda offered by hams should gain the attentive ear of non-hobbyists, including future scholars.

Before proceeding, I feel obliged to address the standard question of why amateur radio operators are called “hams.” The hobby community generally agrees that the origin of the nickname will remain a mystery, all the while debating the matter in good humor. Proposed derogatory explanations for the term that circulated in the hobby literature include that early wireless enthusiasts were known for “hamming it up” on the air and that professional telegraphers berated amateurs for having a “ham fist” clumsiness with telegraph keys. Other common legends suggest that a shortening of “amateur radio” to “am. radio” shifted to “ham radio” for ease of pronunciation, that a club station before the days of FCC licensing took one initial from each of its three members’ names as the call sign “HAM,” or that hobbyists who operated out of abandoned smokehouses referred to these buildings as their “ham shacks.” Whatever the etymology, hobbyists played to the name’s obvious negative connotation in facetious recipes for cooking hams and jokes about amateurs’ piggishness. The pride with which hobbyists accepted the peculiar moniker reflects their eagerness to identify with amateur radio.