

However, the question of whether Condon's Bureau might have become the exception to the rule is purely academic. Already by 1947 Condon's fate was being scripted by those whose interests he injured during the AEC debate, who now had influence in the House Un-American Activities Committee (HUAC).⁸³ In 1948, the HUAC chairman, J. Parnell Thomas declared Condon to be "one of the weakest links in our atomic security."⁸⁴ Increasing questioning of his loyalty-fitness convinced Condon that the Bureau of Standards would be better off without him, and he announced his resignation in the summer of 1951.⁸⁵ Condon would not receive his "day in court" before HUAC until 1952. The lengthy testimony shows nothing substantive, the questioning revolving around the host of acquaintances and friendships within Condon's professional circle. Condon was an able witness, uncowed by the inquisitors, though at times his growing exasperation with the meandering minutia broke through,

⁸³ Forman, *op. cit.*, p. 183.

⁸⁴ "Condon," *NAS Memoirs, op. cit.*, p. 139.

⁸⁵ Condon's private battles only add credence to the argument that the Bureau's growth and militarization were not solely a result of Condon's aggressive and expansionist ambitions, but were well within the larger trends of post-war research and development throughout the country.

sometimes to comic effect.⁸⁶ Soon after, Condon, now director of research at Corning Glass, was made president of the American Association for the Advancement of Science, showing strong support from the scientific community. He was also passed muster by the clearance review board for his security clearance. However, in 1954 the Navy summarily suspended his clearance, and it was a young Senator Richard Nixon who claimed that the Navy had acted by his request.⁸⁷

Condon's trials seem to have made no real impact on NBS. Business, indeed, remained as usual with all programs intact and growing. And Condon's successor, Allen V. Astin, was not the type to rock the boat. Astin, a physicist like his predecessors, had joined the Bureau in 1932, and had a modest number of publications in various journals on radiometeorology, air capacitors, cosmic ray measurement, and proximity fuze technology, and had earned several patents. His work on ordnance had begun in 1940, and he was made chief of the Ordnance Development Division in 1948. In addition to his commendations for war research, noted above, the Commerce Department

⁸⁶ HUAC "Testimony...", *op. cit.* Much questioning centered on an angry letter Condon sent to J. Robert Oppenheimer after the latter's testimony before the committee. It finally got down to details of Condon's writing of the letter. Asked whether a friend, Dr. Bernard Peters, had helped write it, Condon snapped "Nobody helps me write letters. I write them myself." Pressed for details of how and when he wrote it, Condon replied that he probably typed it on his own typewriter. "Do you still have the typewriter?" "Yes, it is not an Underwood, it is a Corona." (p. 3865.)

⁸⁷ NAS Biographical Memoirs, *op. cit.*, p. 140.

presented it with its Gold Medal for Exceptional Service in 1952.⁸⁸

Allen Astin was interim director after Condon's resignation, finally being made permanent director in June, 1952. He would remain chief administrator until 1969, serving the second longest term after Stratton himself. Astin was universally well-liked at the Bureau.⁸⁹ But he was never characterized as a bold, decisive leader. As one associate close to the Director remembered, he was prone to defer difficult decisions, even to the extent of moving such memoranda back to the bottom of his "in box" when they came to the top.⁹⁰ Astin was not prepared for the sequence of events, just a half year after his confirmation, which would result in the most violent assault on NBS in its

⁸⁸ Assembled from "Justification for Nomination for the President's Award for Distinguished Civilian Service: Allen Varely Astin," Jan. 1962, in NIST archives, Astin files, box 2.

⁸⁹ Certainly, there is no way to quantify this, but all indications point to this conclusion and there are none to the contrary. It was substantiated in personal interviews of Astin's colleagues (Page, Taylor, Rabinow, all *op. cit.*, and Dr. Robert Huntoon, interview with N.R. Kellogg, Nov. 3, 1986). Lyman Briggs was very happy about the appointment of Astin, especially as a return from policies of expediency he felt Condon indulged in. (Dr. Peter Briggs Myers interview, *op. cit.*) Furthermore, the NBS mass resignations threatened in response to Astin's dismissal, discussed below, are a strong indication of solidarity with the Director, although it is admittedly impossible to separate solidarity with the individual from a unified response to an abhorrent political attack on the institution and its integrity.

⁹⁰ Page interview. Lauriston Taylor, while a close friend of Astin's, found the Director's inability to make firm decisions of delegated line-authority exasperating, leading to Taylor's decision to leave NBS in 1964.

history: the AD-X2 affair.⁹¹

The central protagonist in this most remarkable episode was an unlikely figure named Jess Ritchie. Ritchie listed himself in the 1953 Oakland, California telephone directory as a psychologist and specialist in alcoholism, as well as an expert in prolonging the life of electrical batteries.⁹² One newspaper interview reported that he "said proudly he had only a sixth-grade education. He's been a bulldozer operator, a construction worker, a contractor."⁹³ What brought him to national attention was his "invention," a powder which purportedly would rejuvenate a lead-acid storage battery, such as an automobile battery, after it no longer functioned.⁹⁴ The powder turned out upon examination to be a crude mixture of epsom salts and glauber salts, and the contents of a single treatment packet were worth a few cents. By 1953 Ritchie had made a considerable sum of money selling these packets mail-order, advertising them in newspaper

⁹¹ For a detailed exposition of the affair, see N.R. Kellogg, "Standardizing the Bureau: the Battery Additive Controversy and the Reorganization of the National Bureau of Standards," unpublished MS, 1987, JHU Dept. of History of Science, 84pp. + appendices.

⁹² *Newsweek*, July 6, 1953, p. 11.

⁹³ *The Washington Daily News*, April 21, 1953. Ritchie's claim to the title of psychologist stems from a certificate of Doctor of Psychology he received from a correspondence school, the College of Universal Truth. (*Washington Post*, Nov. 29, 1953.)

⁹⁴ The claim, as Ritchie described it, was substantially more sophisticated than this, and not totally without the possibility of merit (that is, he understood something of the electrochemical processes of the lead-acid battery). See, Kellogg, "Standardizing..." appendix A.

Sunday supplements, for three dollars apiece.⁹⁵

At this point the story becomes far too involved to describe here in detail, and is so remarkable as to be scarcely tenable even when the course of events are completely set out.⁹⁶ However, in briefest summary the Office of the Post Office and the Federal Trade Commission, responding to various behind the scenes maneuverings by battery manufacturers, automotive trade journals, and many offices of the Better Business Bureau, investigated Ritchie's operation on the grounds of mail fraud and false advertising, beginning in 1950. To make the case that the additive did not work as advertised, those government agencies retained the services of the Bureau of Standards (electrochemistry) to run tests, which it did, and the Bureau investigators confirmed the product's uselessness. Ritchie mounted a one-man publicity campaign over the next several years using his own money, eventually moving himself and his wife to Washington, D.C., to more effectively coordinate his activities and the petitioning of legislators.

Ritchie struck a resonant chord in the new Eisenhower administration,

⁹⁵ Ritchie began selling the additive sometime after 1947. He estimated his sales for the first half of 1951 at between \$130,000 and \$140,000. "Hearings before the Select Committee on Small Business, Senate, Investigations of Battery Additive AD-X2," *op. cit.*, p. 189.

⁹⁶ In addition to the author's own essay, there are three sources of public record recommended: 1) "Hearings before the Select Committee on Small Business," U.S. Senate, Investigations of Battery Additive AD-X2, U.S.G.P.O., 1953, pp. 785. 2) "Report of the Committee on Battery Additives of the National Academy of Sciences," to the Secretary of Commerce, Oct. 30, 1953, copy in NIST archives RHA, box 682. 3) "Technical Information for Congress," report to the Subcommittee on Science, Research, and Development, House of Representatives, 91 Congress, U.S.G.P.O., 1969 (contains a case study of the AD-X2 affair as one chapter.

which was swept into office on a three-plank platform: K₁C₂, or in other words, the Korean War, Communism, and Corruption. With this last of the rallying cries, they promised to "clean up the mess in Washington."⁹⁷ For the new Commerce Secretary, Sinclair Weeks and his Assistant Secretary, Craig Sheaffer (of the fountain pen company), cleaning out the corruption meant, to a considerable degree, freeing the country of the shackles of the regulators and economic planners of the New Deal. As Weeks put it, "Some tub thumpers and pundits are sneering because the President has recalled to public service the 20-year forgotten man. They complain because the new administration no longer gives priority to the theories of foreign Socialists and to ...local egg heads." That reaction was understandable because a "whole generation has been taught that knowledge of how to meet a payroll is a sign of a low I.Q., that honest profit is a wicked motive and that nothing in business is needed by Government except its excess-profits and corporate income taxes."⁹⁸

In the populist appeal of Jess Ritchie, Weeks and Sheaffer found a *cause celebre*, and when the case was finally presented to a special Senate hearing they testified against their own department's Bureau of Standards. Remarkably, the focus of attention became not the various interests who had instigated the government sanctions against Ritchie, nor the government agencies with the regulatory powers to force his compliance. Rather, it was the scientific integrity

⁹⁷ Paul F. Boller, Jr., *Presidential Campaigns*, Oxford University Press, 1985, p.280.

⁹⁸ *U.S. News and World Report*, April 24, 1953, pp. 15, 16, 90, 93.

of NBS, and the implications of an imputed dark collusion between its scientists and outside agents determined to squelch the activities of an honest entrepreneur which took center stage.⁹⁹ Events moved quickly in the spring of 1953, and the newspapers were littered with articles, editorials, and political cartoons. Secretary Weeks would supply one of the more potent catch-phrases for the opposition, particularly the nation's scientific community, when he claimed in testimony that the Bureau had "not been sufficiently objective [in their laboratory investigations] because they discount entirely the play of the marketplace..." By this he meant that the thousands of happy customers who swore by Ritchie's product should count for something in the laboratory.

On April 4, Defense Secretary Charles Wilson privately sent an order to the Army, Navy, Air Force, and the Research and Development Board stating that no further research contract would be let at outside government agencies on transferred funds without being submitted for his personal review, or that of his Deputy Secretary, Roger Kyes. The "Kyes Order" as it came to be known, did not specifically mention NBS, but that was its target. Wilson's order was instigated by a letter from Weeks, suggesting that he, Wilson, check into the large expenditures of the critical proximity fuze program.¹⁰⁰ The Bureau quickly

⁹⁹ See, for example, *Congressional Record, House* 1953, pp. A2333-4; and *Senate* pp. 6221,2.

¹⁰⁰ *Washington Post*, April 24 and May 1, 1953. The Kyes Order was modified (essentially reversed) on August 17, 1953, but the Bureau continued to have some problems securing contract approval well into the following spring. For NBS letters and memoranda concerning divisional problems with the order, as well as a copy of the Kyes

realized the devastating effect the order would have, and it was informed by some DoD project officers that they would prefer to have work done elsewhere rather than process orders through this new multi-stage review, or not have the work done at all. In the estimation of NBS administration, this would result in staff reductions by June.¹⁰¹ In May, gadfly political columnist Drew Pearson reported that Weeks was surreptitiously seeking to get the lucrative proximity fuze program moved to the American Machine and Foundry Company, through which Weeks would personally profit.¹⁰²

But by May the crisis was already headed toward a resolution, messy though it would be. The real climax came in late March, when Weeks, pushed by Shaeffer, asked for Astin's resignation. Astin would only comment that "Mr. Shaeffer expressed dissatisfaction by the Department of the Bureau's handling of the battery additive question..." On March 31, the day the Senate hearing

Order itself, and a summary of the revised policy, see NIST, RHA, shelf 385, box 8 (division 100 records, Office of the Director).

¹⁰¹ Summary of minutes of meeting of the Applied Mathematics Advisory Council, May 12, 1953, p. 4, NIST RHA, box 202. Robert Huntoon, then chief of the NBS Missile Development Lab at Corona, remembers telephoning Washington every morning during this period, to find out if funds were available for that day's operations. (Huntoon interview, *op. cit.*)

¹⁰² "Politics Wins Feud with Science," *Washington Post*, May 1, 1953. A more potent expose appeared in the *New Republic*, May 25, 1953, "Wilson & Weeks: Business First," pp. 11-12. This latter periodical ran a series of articles during this period on the AD-X2 affair by a contributor known only as "Scientists Q," probably a Bureau staffer.

commenced, Astin's resignation was announced, to be effective April 18.¹⁰³ Astin, bewildered, seemed like a deer caught in the headlights. When asked by Senator Lester Hunt (D- Wyoming) if he had ever encountered a situation like this in his twenty three years at the Bureau, Astin could only reply, "This is a most unique experience, sir."¹⁰⁴

Astin was compliant, willing to be sacrificed on a political altar he neither created nor understood. But this sin-offering proved to be the wrong choice. Detlev Bronk, President of the National Academy of Sciences knew the ouster was a mistake, and advised Weeks on April 15 not to go through with it, at least until an investigation could be completed.¹⁰⁵ But it was already too late. On April 13 the *Washington Post* reported that "[m]ore than 50 [NBS] scientists, many of them key men, have submitted undated written resignations to their division chiefs..." pending dramatic action by Secretary Weeks. The article also reported uneasiness among scientists at the National Institute of Health, the Naval Research Laboratory, and the Naval Ordnance Laboratory, and industry representatives were already trolling for potential recruits. A Pentagon official was said to have tried to calm the researchers down, adding that it was common

¹⁰³ *New York Times*, April 2, 1953. This was a particularly ugly episode, with Shaeffer playing the hit-man, and Weeks, repeatedly denying Astin's requests for an interview, hiding behind him. Neither Weeks nor Shaeffer could provide any concrete reasons to the Senate subcommittee as to why Astin was being removed. The additive controversy, they assured the senators, was just "one factor in a number of reasons." When pressed to give those reasons, Shaeffer replied: "We are not prepared to do so now, sir." ("Hearings..." *op. cit.* pp. 1-8.)

¹⁰⁴ "Hearings..." *op. cit.*, p. 326.

¹⁰⁵ Federation of American Scientists, circular #A-994, May 22, 1953.

knowledge that any one of the group could immediately double his salary by going to private industry.

By April 17, the [Washington] *Evening Star* revealed that a secret poll conducted by NBS division chiefs showed that about 400 scientists and technicians would probably leave, with one administrator adding that the number would likely double. Among the effects of such a massive departure, "[t]he bureau unit working on projects for the Atomic Energy Commission would be virtually destroyed."¹⁰⁶ Protests had already been flooding in from industry and academic scientists around the country. The Federation of American Scientists, the Washington Academy of Sciences, and the Association for Computing Machinery were among groups calling for Eisenhower's direct intervention.¹⁰⁷ Weeks announced the following day (April 18) that Astin would remain until late summer or early fall.

A way out of the impasse was found in what has since become the most typical solution to politically sensitive issues: the blue ribbon committee. The

¹⁰⁶ The number of indicated resignations in the poll was placed at 397, by "Scientist Q" in *The New Republic*, May 4, 1953, pp. 9-11. A most telling incident was recalled by Walter Weinstein years later: An unnamed scientist visited Sinclair Weeks during the height of the controversy, and "as he came into the office, the Secretary got up and came around his desk and greeted him and the first thing out of his mouth was 'I am so glad you're here, I wanted to assure you that under no circumstances should the staff of the Bureau be concerned about the stability of their jobs.' And he [the scientist] said... 'Sir, I'm afraid you misunderstand. It isn't a question of whether the staff is worried about losing their jobs, but the question now is whether they still want to work for the Bureau.'" ("Oral history interview of Dr. A.V. Astin, July, 12, 1983, NIST archivist's office.)

¹⁰⁷ *Washington Post*, April 16, 1953. Editorials were springing up in the technical journals, such as *Steel*, *Product Engineering*, *Chemical and Engineering News*, *Physics Today*, as well as the major newspapers.

National Academy of Sciences provided two in this case. The first, under the chairmanship of Mervin J. Kelly of Bell Laboratories, reported on the entire operation of NBS in relation to national needs. The second, under the direction of Zay Jeffries, retired vice president of General Electric, investigated the Bureau's handling of the battery additive issue.¹⁰⁸ The Kelly committee report was actually a very thoughtful study of the Bureau's work, the Jeffries committee report less so, but both served their intended function. They both saved face for the Commerce Department, by implying that an investigation was warranted. They also gave the Bureau a clean bill of health. However, this would not be the end of the matter.

The Kelly committee was basically laudatory of all the bureau's programs, though they called for some administrative changes and a substantial increase in direct funding for basic research. But the most dramatic proposal of all was its recommendation to divest NBS of its defense work. There was logic in this proposal, as the military contracts dwarfed the other, statutory, lines of work.¹⁰⁹ One cannot say for certain that Secretaries Weeks

¹⁰⁸ The Kelly Committee report (*op. cit.*) was delivered on October 15, 1953. The Jeffries Committee delivered its "Report of the Committee on Battery Additives of the National Academy of Sciences (NAS/NRC) on October 30, 1953.

¹⁰⁹ As we have already seen, approximately 90% of the total budget went to defense R&D. This does not necessarily mean, though, that an equal proportion of the staff is engaged in defense work, due to disparities in equipment and testing expenses for different projects, among other things. However, in 1953 Allen Astin reported that "Since W.W.II., and particularly since the Korean episode, [defense] activities have grown substantially until now more than three quarters of the Bureau's staff are working on problems for the Department of Defense." (A.V. Astin, "The National Bureau of Standards," invited address before the American Physical Society, May 1, 1953, in

and Wilson, embarrassed by the episode, insisted on punishing the Bureau, but a definite action like reorganization also supports the implication of some major flaw with NBS which would be corrected. And if the Bureau were to be subject to destabilizing actions in the future, it would be in the military's interest to have its critical research and development programs performed elsewhere. Still, the following sequence of events speak to considerable back-room negotiations.

On July 24, nearly three months before delivery of the Kelly Committee report, Weeks and Wilson jointly announced that all four major ordnance divisions would be severed from the Bureau and transferred to the Army and Navy.¹¹⁰ On August 22, Weeks told the press that "No further need exists to seek a successor [for NBS Director] as Dr. Astin has expressed his willingness to continue as a key official of this Administration and as such he is from here on a member of my team."¹¹¹ Within a few weeks, Craig Sheaffer, and another assistant secretary (for Administration, James C. Worthy) had resigned, offering no explanation.¹¹² For Allen Astin, the nightmare was over, and the Bureau would never again be so assaulted.

Physics Today, vol. 6, no. 6, June, 1953, pp. 12-13.)

¹¹⁰ *New York Times*, July 24, 1953. The actual transfer of the four divisions from Commerce to Defense was ordered to take place on Sept. 27, 1953, "or as soon thereafter as possible." (*Federal Register*, Sept. 25, 1953, pp. 5713-4.)

¹¹¹ *New York Times*, Aug. 22, 1953.

¹¹² *New York Herald Tribune*, Sept. 19, 1953. Another assistant whom Sheaffer had brought with him, and who was reputedly the author of Weeks' fatal remark about "the play of the marketplace," also left. (*Washington Post*, Nov. 29, 1953.)

One cannot draw the same sorts of insights from the AD-X2 affair as one can from the process of expansion, accommodation, and correction that we see in the heuristics of the first administration. There was no dialogue in the AD-X2 affair, not even an internal one. This was an abrupt, violent confrontation that at its root had little to do with Bureau policy. It did exploit a perceived weakness of the Bureau, assuming that the multitude of anonymous laboratory workers could be depicted as an enemy of the people, and that the scientific community would not respond in any politically significant way. And the stakes in the scheme, a central part of the strategic defense R&D activities, were high, whether or not profiteering was the original inspiration of Weeks, Sheaffer and Wilson. However, from the standpoint of the Bureau the episode revealed programmatic defects not to be repeated, namely the prosecution of an inordinate portion of its activities through volatile, transferred funds. The codicil to this lesson was to avoid major efforts not specifically authorized through the Congressional charter.