

## AD-X2: The Case of the Mysterious Battery Additive Comes to an End

A brief announcement from the National Bureau of Standards discloses the end of the AD-X2 affair, a landmark in the preservation of scientific integrity against governmental whim and commercial exploitation. The case, which raged fiercely in the early 1950's, came close to shattering the bureau and aroused the nation's scientific community as it probably never was aroused before.

AD-X2 is a storage battery additive for which beneficial effects were claimed by its manufacturer, Jess M. Ritchie, of Oakland, California. Ritchie, who was closemouthed about the composition of his product, contended that, when it was properly applied to batteries, it would extend their life as much as two or three times. He said it accomplished this by reducing sulfation. His customers, in large numbers, offered enthusiastic comments on the product. The Bureau of Standards, to its misfortune, was unable to confirm these findings in laboratory tests. Its analysis showed AD-X2 to be nothing but a mixture of sodium and magnesium sulfates, the standard ingredients of additives which it had previously deemed useless. Ritchie later conceded that sodium and magnesium sulfates were indeed the principal ingredients, but claimed that his product's virtues came from certain "trace elements" which he would not disclose. The bureau said that if by trace elements he was referring to impurities normally found in these substances, AD-X2 then indeed contained trace elements. But it still could find no battery-rejuvenating powers in AD-X2. On the positive side it was able to report that Ritchie's mysterious formula—he said he and a vice president were the only ones who knew it—sometimes varied as much as 19 percent in the proportion of its two main ingredients. The bureau also found that it would cost a nickel to buy the wholesale materials for a batch that Ritchie retailed for \$36. Ritchie himself was dubious of the powers of chemical analysis. He quoted his chemist as telling him that "if you had 10 chemists 30 years and they worked at it diligently, they might be able to crack it . . .," but Ritchie himself thought this was unduly optimistic.

To the mind of Sinclair Weeks, the Secretary of Commerce of the newly elected Eisenhower Administration, the

uncompromising attitude of the Bureau of Standards, one of his subordinate agencies, was deplorable. When Allen V. Astin, who shortly before had been appointed bureau director, failed to respond to suggestions that a different finding might be produced, Astin's resignation was requested. Astin complied, but was reinstated a few hours before the resignation was to become effective, following reports that some 400 scientists at the bureau would also depart. In the meantime, hearings were held before the Senate Small Business Committee. They produced little enlightenment on the question of whether AD-X2 improved batteries, but they did clearly illuminate Secretary Weeks' view of how scientific evidence was to be regarded when it conflicted with commercial interests.

In testifying on Astin's forced resignation, Weeks stated: "I am not a man of science, and I do not wish to enter into a technical discussion or be accused of overruling the findings of any laboratory. But as a practical man, I think that the National Bureau of Standards has not been sufficiently objective, because they discount entirely the play of the market place. . . . As a practical man, I do not see why a product should be denied an opportunity in the market place. I believe that the purpose of the Congress, in establishing the Bureau of Standards and in giving powers to such agencies as the Federal Trade Commission and the Post Office Department to act to prevent unfair practices and the perpetration of frauds, was that they should be operated or their powers should be exercised in the interest of the general public."

### Bureau's Role

The bureau, notable for its unblemished integrity and its aloofness from publicity, was hurled into the noisy and nasty AD-X2 affair because of Ritchie's insistence that it revise a 20-year-old report which disputed the effectiveness of battery additives. Ritchie felt the report hurt him because it was quoted in the influential publications of the National Better Business Bureau and its local affiliates. Under congressional pressure which Ritchie had enlisted in his cause, the Bureau of Standards tested AD-X2 and found it no more effective than its predecessors of two decades. On the basis of these findings, the Federal Trade Commission accused Ritchie of false ad-

vertising, and the Post Office barred his product from the mails. Ritchie's congressional supporters and Secretary Weeks prevailed upon the Post Office Department to suspend the prohibition before it took effect, and Astin shortly afterward found himself before a largely hostile Senate committee, which sought to determine why a government agency was making life difficult for an enterprising small businessman.

### Astin's Testimony

Astin, confronted by the task of explaining why his laboratories could not confirm the conclusions of AD-X2's satisfied customers, was somewhat in the position of a physician arguing against patent medicines to which the patient attributes curative powers.

"If it works," he told the Senate committee, "then it must have some effect on the performance of a battery. It is possible to measure battery performance with laboratory instruments. We have been able to measure no effect of this material on battery performance. . . . They must have some measurements, some consistent, logical measurements before their observations could be taken as establishing that the material is beneficial."

Astin also pointed out that following protests from Ritchie on the nature of the tests performed by the bureau, another series of tests were conducted under conditions specified by Ritchie. "None of the judges, including Mr. Ritchie and his assistant," Astin testified, "was able to tell any consistent difference between the treated and untreated batteries."

Whether there were or not, Ritchie maintained his protests that the National Bureau of Standards was not giving him a fair deal, and innuendoes were cast about to the effect that behind the bureau's findings were battery manufacturers who feared the effect AD-X2 would have on their replacement market.

To counteract the bureau findings, Ritchie put great stress on a study M.I.T. made of AD-X2 at the request of the Senate Small Business Committee. The study, he contended, supported his claims, and, fully aware of the value of an M.I.T. endorsement, he made capital of it until a terse news release from M.I.T. disclosed that, on the basis of its tests, "it was unjustifiable to conclude that the battery additive did or did not have commercial value." It added that the M.I.T. "report

and that of the Bureau of Standards indicate a difference in judgment as to the conclusiveness of limited laboratory tests. It is not unusual for objective scientific tests to be subject to different interpretations or for differences of opinion to occur in good faith."

A more direct blow against Ritchie was in store, however, from the Committee on Battery Additives of the National Academy of Sciences, which was appointed to study the controversy at the suggestion of Secretary Weeks. It stated simply that "We conclude that the relevant data now available to us regarding the effects of AD-X2 are adequate to support the position of the National Bureau of Standards that the material is without merit." This finding quickly revived the prestige of the bureau and AD-X2's fortunes thereafter failed to rise again, despite a favorable report by the Senate Small Business Committee.

Astin, in the course of his testimony, threw some light on the intriguing question of why the customers found merit in AD-X2 while the scientists did not.

"There are a number of explanations," he said, "and I am not an expert in analyzing what makes people write testimonial letters. However, there are numerous examples where people believe they are getting beneficial results from some product. Hair restorers, I think, are a very common example. It is easy to get people to believe that they get beneficial action from hair restorers, but I know of no instance where it has been found useful."

#### AD-X2 Process

He also pointed out that the AD-X2 treatment involved significantly more than the mere addition of powder to the battery. The powder was accompanied by a long, low-current recharge, which would normally revive most played out batteries. In addition, he pointed out, many batteries written off as "dead" have considerable life left in them, and, matching some of the spectacular claims offered by Ritchie, he reported that "some of our staff members . . . bought a lot of second-hand batteries that had been turned in as being at the end of their useful life, and did nothing to them, but just put them in their cars—they did not even charge them—and the first failure occurred after six months, according to my recollection."

Ritchie's prospects seemed to brighten a bit in 1956 when the Federal Trade Commission, after 2 years of hearings, concluded that when the scientific conclusions were balanced against the numerous reports of customer satisfaction, Ritchie could not be burdened with a charge of misleading advertising. The basis of the FTC conclusion was that if the customers felt they were getting what Ritchie claimed to give them, they were not being deceived. This decision would seem to open the way to a thriving placebo industry.

Ritchie subsequently brought suit against the Government for \$2.4 million, claiming that the findings of the National Bureau of Standards had ruined his business. He dropped the suit earlier this month. In a statement noteworthy for its dispassionate tone, Astin announced that "I am pleased to report" the end of the case. He went on to state that "dismissal was requested by the plaintiff [Ritchie], the manufacturer of Battery AD-X2, after being advised in pre-trial conference of the nature of the Government's defense of the suit." The case was dismissed with prejudice, which means Ritchie cannot reopen it.

The Government has not disclosed what that defense was to be, but there are indications that it would have involved findings which the Justice Department and the National Bureau of Standards, with its understandably more than routine interest in the case, had developed in preparation for its final showdown with AD-X2.

Ritchie's attorney said the case was being dropped because Ritchie could no longer afford to see it through. Ritchie, he said, is in business on the West Coast, still makes AD-X2, and it is bought by long-standing, satisfied customers.

Today, as far as the federal government is concerned, AD-X2 stands in a sort of administrative no-man's land. The Bureau of Standards has found it worthless, the Federal Trade Commission has found that customers are satisfied that Ritchie is giving them what they pay for, and the Post Office Department carries the product through the mails without restrictions, which is just where Ritchie was back when he touched off the controversy by seeking to have his product exempted from the Bureau of Standards' blanket condemnation of battery additives.—D.S.G.

## Announcements

The National Science Foundation has formed an **Office of International Science Activities** to provide federal agencies and other interested groups with staff and policy guidance on international aspects of research support, science education, and exchange of scientific information; and to develop experimental programs in international science cooperation. The new office, headed by Arthur Roe, former director of NSF's planning group for educational and international activities, will also cooperate with the Department of State in formulating a U.S. foreign policy in science and science education.

Sets of **metals abstract references** are currently available through the American Society for Metals' world information files. The 1960 files cover columbium, molybdenum, tantalum, tungsten, cryogenic properties of metals, vacuum melting and casting, nondestructive testing, explosive forming, and oxygen steel-making. Prices, commensurate with number of abstracts, range from \$12 to \$45. (ASM, Metals Park, Ohio)

The Soviet Ukrainian Academy of Sciences is establishing an **Institute of Cybernetics Problems** in Kiev to promote theoretical research in the development of new computing, control and information machines, and telemechanic systems. A similar institute is to be set up in Moscow under the U.S.S.R. Academy of Sciences, and a cybernetics department is being founded at the academy's Siberian branch in Novosibirsk.

A new federation of eye banks, to be known as the **Eye-Bank Association of America**, has been established by the American Academy of Ophthalmology and Otolaryngology. Objectives of the association will be to standardize the activities of eye banks, to educate the public and establish national legislation on eye donations, and to promote research in the prevention and treatment of blinding eye diseases. (Ross Guglielmino, President, Associated Eye-Banks, Rochester, N.Y.)

A recent survey of over 1000 **African students in the United States** showed that 79 percent were satisfied with their training. Nearly half of the students believed that their U.S. education would prepare them for their professional ca-