

Decision

IN THE MATTER OF
PIONEERS, INC., ET AL.ORDER, ETC., IN REGARD TO THE ALLEGED VIOLATION OF THE
FEDERAL TRADE COMMISSION ACT*Docket 6190. Complaint, Mar. 11, 1954—Decision, May 16, 1956*

Order dismissing, on the ground that the allegations were unsustained by the greater weight of the evidence, complaint charging a manufacturer in Oakland, Calif., with making false representations in advertising concerning the properties of its "Battery AD-X2" battery additive designed to be used in lead-acid storage batteries.

Mr. R. P. Bellinger and Mr. William M. King for the Commission.
Ellis, Houghton & Ellis and Mr. Wilbur N. Baughman, of Washington, D. C., for respondents.

INITIAL DECISION BY WILLIAM L. PACK, HEARING EXAMINER

1. This proceeding involves a product known as "Battery AD-X2," an additive designed for use in lead-acid storage batteries. The Commission's complaint, issued March 11, 1954, charges respondents with the making of numerous misrepresentations in the advertising of their product, including statements that a condition known as "sulfation" is the direct or indirect cause of most battery failures, that the product beneficially affects this condition and reduces the harmful effects thereof, and that as a result batteries function better and last longer, operating with less heat, less water loss, cleaner plates, less shedding of active material from the plates, less danger of buckled plates, etc., and that through the use of the product batteries which have failed because of sulfation can be restored to useful service. After the filing of respondents' answer, challenging all of the material allegations of the complaint and denying any misrepresentation of the product, numerous hearings were held and much testimony and other evidence received, both in support of and in opposition to the complaint. The case was then argued orally before the hearing examiner, and is now before him for final consideration and decision.

2. While respondents challenge the interpretation placed upon their advertising by the complaint, insisting that the quoted excerpts from the advertisements are taken out of context and misconstrued, the examiner is of the view that the construction placed upon the advertising by the complaint is substantially correct provided two things are constantly kept in mind. The first of these is that all of respondents' claims for their product are conditioned upon the

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product's being used according to their directions, and the second, that respondents emphasize that the product is for use only in batteries which are mechanically sound, no claim being made that the product will be of any benefit to batteries not in such condition.

3. At the heart of the proceeding is this matter of sulfation. This is so because all of respondents' claims for their product are based upon the asserted effects of the product on sulfation and on conditions allegedly resulting from sulfation. The first two questions which must be answered are: first, what is sulfation; and second, to what extent is sulfation a cause of failure of lead-acid storage batteries, that is, is it a major or minor cause of battery failure?

4. First, what is sulfation? In order to answer this question it is necessary that consideration be given briefly to the component parts and the principle of operation of a lead-acid storage battery. Such a battery may consist of one or any number of cells. Essentially, each cell is composed of a positive plate and a negative plate. The positive plate contains lead peroxide and the negative plate sponge lead. These materials are known as the "active materials" of the battery. However, these materials cannot function—become active—unless they are accompanied by a third element. This third element is the electrolyte, which is a solution of sulfuric acid and water. When a cell is on discharge, as, for example, when the lights on the automobile containing the battery are switched on, the sulfuric acid acts on the active materials on both the positive and negative plates and the result is a new compound known as lead sulfate. It is this lead sulfate which supplies or releases the electrical energy of the battery.

5. Thus the "sulfating" of a lead-acid battery, that is, the formation of lead sulfate, is an essential and normal process in the battery without which it would not work. But this is not the end of the matter. The active materials, when placed on the plates, are in the form of rather soft, spongy, porous substances. However, as the battery begins to age, these materials tend to become hard, crystalline and brittle. This tendency may be accelerated by certain external causes, such as overcharging or undercharging of the battery, excessive heat, etc. It is this hardening process which is known as sulfation. Or as stated in the complaint, "The word 'sulfation' is a colloquial name for the formation of hardened lead sulfate in a cell."

6. Next, to what extent, that is, how frequently, is sulfation the cause of battery failure? There is no doubt that it is one of the causes. To quote again from the complaint, "It [sulfation] is one of the causes of battery failure, especially in decreasing battery efficiency." While Dr. Walter J. Hamer, Chief of the Electro-chemistry Section of the National Bureau of Standards, expressed the opinion (not without

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support from other witnesses) that relatively few battery failures are due to sulfation, this view is opposed to the great weight of the evidence. It is impossible upon the present record to fix percentages as to the various causes of battery failure, but it appears certain that sulfation, if not the major cause, is at least one of the major causes. Some of the harmful effects of sulfation which cause or may cause battery failure are loss of active material from the plates, excessive heat, greater water loss, buckled plates, decreased porosity of the material on the plates, and formation of sediment or "mud" in the bottom of the cells, with possible short-circuiting of the battery.

7. The principal ingredients in respondents' product are magnesium sulfate and sodium sulfate. Small quantities of magnesium oxide and barium sulfate are also present. In addition, chemical analyses of the product reveal the presence of a number of "trace" elements, that is, elements present in extremely small or minute quantities.

8. Respondents' place of business is located in Oakland, California. Their product was first placed on the market in 1947. It was the result of the joint efforts of respondent Jess M. Ritchie and Dr. Merle Randall (now deceased), who at that time was, or shortly prior thereto had been, a Professor of Chemistry in the University of California. It appears that these individuals, or one of them, had purchased rights to a battery additive from a third party, but the product proved unsatisfactory and was discarded. After extensive experimentation the present product was produced and placed on the market. It was originally called "Protecto-Charge," the name being subsequently changed to "Battery AD-X2." Some 500,000 packages (treatments) of the product have been sold, the great bulk of the sales being to industrial users, that is, industrial plants, including battery shops. Very few sales are made direct to the general public. One package (containing three envelopes of the product) is regarded as sufficient for the ordinary three-cell automotive battery. The directions for use appearing on the package are:

1. Clean top of battery and posts.
2. Cover plates with water.
3. Empty one envelope to each cell.
4. Dissolve AD-X2 on top of plates with battery syringe.
5. IMMEDIATELY start motor and charge for 30 minutes, to blend AD-X2 with battery acid as sulfation preventative.
6. Fully charge at not more than 10 amps, when charger is used.
9. There is no contention on behalf of the Commission that the product does any harm to a battery. The question is whether the product is neutral (without any significant effect) or whether it does in fact have the beneficial effects claimed by respondents. The most

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important issue raised by the complaint is whether use of the product will cause a battery to last longer, and this issue would appear to be closely related to the other issues raised by the complaint. If the product does in fact cause a battery to operate better, that is, with less sulfation, less loss of active materials, less heat, less water loss, less sediment, etc., it would seem to follow that the use of the product lengthens the life of the battery. And, conversely, if the use of the product causes a battery to last longer, it would seem reasonable to conclude that the battery is operating better and with less handicap due to sulfation and its effects. The evidence as to the effect or lack of effect of the product falls into two general categories—scientific evidence, and the testimony of users of the product.

SCIENTIFIC EVIDENCE IN SUPPORT OF COMPLAINT

10. The strongest evidence in support of the complaint comprises certain laboratory tests of the product made by the National Bureau of Standards. These tests were begun in March, 1952 and continued at intervals for approximately one year. There were ten tests, five of them being designated "electrical tests" and five "physical chemistry tests." At various times both used batteries and new batteries were employed in the tests. Where necessary throughout the tests, adequate "controls" appear to have been maintained, that is, batteries not treated with respondents' product were used along with batteries treated with the product, so that any differences in behavior in the two groups of batteries could be observed. The tests covered a wide range, including tests to determine the effect of respondents' product on sulfation, battery life, storability of batteries, temperature, water loss, capacity, sediment, charge and discharge, solubility of lead sulfate in battery electrolyte, etc. The conclusion drawn by the Bureau of Standards from the results of the tests was that respondents' product is without merit; that it has no beneficial effect, certainly no significant beneficial effect, on lead-acid batteries.

11. Dr. Hamer, basing his testimony upon the results of the tests and also upon his general knowledge in the field, testified that in his opinion the product was incapable of producing the effects claimed for it by respondents.

12. While it is possible to find some flaws and imperfections in the testing procedure, they are of a minor nature and do not operate to invalidate the tests. On the whole, the tests appear to have been well designed and properly conducted. There is, however, as will be seen later, a serious question as to whether conditions existing in the day to day operation of automotive batteries in the field can be duplicated

sufficiently in the laboratory to make laboratory tests conclusive as to actual field operation.

13. Respondents' attacks upon the fairness and objectivity of the Bureau of Standards are rejected as without foundation. No good reason appears for questioning the good faith or the scientific integrity of any of the personnel of the Bureau who were connected with the tests, practically all of whom appeared as witnesses in the present proceeding.

14. A test of the product was also made by Dr. Reginald S. Dean, who operates a private research and testing laboratory in Riverdale, Maryland, under the name Chicago Development Corporation. Dr. Dean is a consulting engineer, holds the degree of Ph.D. in physical chemistry, and has had wide experience in the field of electro-chemistry and electro-metallurgy. He has seen service in both Government work (Bureau of Mines) and in private industry. The test in question was made by Dr. Dean for Consumers Research, Inc. While it appears that a prior test of the product had been made by him at the instance of respondents, the results of this test are not in evidence. There is direct conflict between the testimony of respondent Ritchie and that of Dr. Dean as to whether the results of the former test were favorable or unfavorable to the product.

15. The Consumers Research test took place during the period August 7 to September 20, 1953. Sixteen cells from discarded automotive batteries were selected and arranged in comparable pairs as nearly as possible. Eight of the cells, one in each pair, were treated with respondents' product, the remaining eight being left untreated for use as controls. However, it was found that two of the latter group were defective and these two were discarded. This left only six cells for control purposes, and it was therefore necessary that two of the control cells be doubly paired—that is, that each be used as a control for two treated cells. All of the fourteen cells were sulfated to some extent, but no estimate of the degree of sulfation was attempted. During the test period all of the cells were uniformly subjected to varying rates of charge and discharge and the behavior of the cells noted. At intervals measurements were taken as to specific gravity, temperature, and other factors. The conclusion reached by Dr. Dean was that there was no significant difference between the behavior of the treated cells and that of the untreated. Basing his answers upon both the test and his general knowledge, he testified in substance that in his opinion respondents' product was without merit.

16. Another test of respondents' product was made by William H. Hand, who operates a private research and testing laboratory in Nyack, New York. Mr. Hand is a chemist and physicist and holds a

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B.S. degree. He has at times acted as a consultant to battery manufacturers, and he also manufactures batteries which bear his own name. Mr. Hand testified that around 1949 or 1950 respondent Ritchie, in company with another person, came to his place of business in Nyack; that Mr. Ritchie gave him a circular advertising the product AD-X2 and also left with him four packages of the product; that while Ritchie was there he (Ritchie) selected a used battery from a number in the laboratory and demonstrated with this battery how the product should be applied.

17. Hand further testified that some four years later, in March 1954, he received an inquiry about the product from one of his customers and he decided to make a test of the product, using the packages of the material which Ritchie had previously left with him. For the test he selected three new three-cell batteries which had been made in his own shop and which were in as nearly perfect condition as possible. Through a process of charging the batteries and then permitting them to remain idle, a substantial amount of sulfation was purposely built up in them. Two cells in each of the batteries were then treated with the product in accordance with the oral directions which he said had been given him by Ritchie, the third cell being left untreated as a control. At intervals during the test period of approximately two months, the batteries were subjected to charge and discharge and the behavior of the several cells noted. Observing no difference between the behavior of the treated cells and the untreated, Mr. Hand concluded that the product was "neutral," that is, that it neither helped nor harmed the batteries.

18. One aspect of Hand's testimony on which there is sharp controversy is his identification of respondent Ritchie, both in his original testimony and when recalled in rebuttal, as the person who visited his laboratory in 1949 or 1950 and left the advertising circular and the packages of the product. Ritchie in his own testimony denied that he had ever been in Nyack, that he had ever seen Hand prior to Hand's appearance as a witness, and that he had ever given Hand any packages or any advertisement of the product. Ritchie further testified that for a period of several years, which included the period of time referred to by Hand, he (Ritchie) was not out of the States of California, Arizona and Nevada. This latter statement is corroborated by the testimony of Mrs. Jess M. Ritchie and by that of William M. Hager, a former business associate of Ritchie's in Pioneers, Inc.

19. The examiner finds it unnecessary to decide this issue, which may present only a question of accuracy of memory rather than a question of veracity. The important matter here is whether in con-

ducting his test Hand used the product AD-X2 or some other product, not whether the material was obtained from Ritchie or from some other source. There appears to be no adequate reason to doubt that the material used was AD-X2. If the material was obtained from Ritchie it would have been about four years old at the time it was used in the test, as the alleged meeting of Hand and Ritchie took place in 1949 or 1950 and the test was not conducted until 1954. Whether the lapse of such a period of time would affect the product does not appear to be disclosed by the record.

20. At the instance of respondents, tests of their product were also made by Dr. T. P. Dirkse, Professor of Chemistry in Calvin College, Grand Rapids, Michigan. Dr. Dirkse holds the degrees of A.B., A.M., and Ph.D., his graduate work having been done in general and physical chemistry. He has been at Calvin College continuously since 1947. The tests in question were begun in May 1951. There were three tests in which a total of twenty-three batteries were used. In the first test there were nine batteries, of which five were treated with AD-X2, the remaining four being left untreated as controls. In the second test ten batteries were used, divided equally as between treated and untreated. The third test included four batteries, two treated and two untreated. All of the batteries were used batteries and some of them were supplied by respondents and by their local distributor in Grand Rapids.

21. In the several tests the batteries were subjected to charge and discharge and their behavior noted. Dr. Dirkse observed no appreciable difference in the behavior of the treated batteries as compared with the untreated, and he was therefore of the opinion that the product was neutral, neither beneficial nor harmful. He recognized, however, that the tests probably were not extensive enough to be conclusive. It appears to have been contemplated that in the test only one cycle of charge and discharge would be used, although Dr. Dirkse did on his own responsibility subject some of the batteries to additional cycles. His statement on this point was as follows:

I suggested as I recall to Mr. Ritchie in a letter, that probably it would be better to engage in a longer term test. See, the tests I carried out for him involved charging and discharging. That is what we call one cycle and I detected no difference on the batteries that I had between treated and untreated. In a few cases I ran a few more cycles and still detected no difference, but in no case did we run, you might say, the battery very far along. So, I felt that it might have been well to institute a series of tests whereby a longer range study of the effect of Ad-X2 on battery operation, battery characteristics, amount of servicing the battery would require and so on and so on, might be helpful and might show up these differences that were claimed, but I had not been able to detect. (Tr. 3275)

SCIENTIFIC EVIDENCE ON BEHALF OF RESPONDENTS

22. At the request of the United States Senate's Select Committee on Small Business, tests of respondents' product were made by the Massachusetts Institute of Technology, Boston, Massachusetts. These tests, made during the latter part of 1952, were conducted by Professor Harold C. Weber, Professor of Chemical Engineering in the Institute, who appeared as a witness in the present proceeding. In its report to the Committee the Institute summarized the results of the tests as follows:

(a) Among the cells in any chosen battery, all cells in such battery having been subjected to the same previous history, except for treatment with AD-X2, treated cells showed larger capacities than did untreated cells, both being subjected to the same conditions of discharge.

(b) When AD-X2 was added to cells containing sediment, the amount of sediment decreased both while the battery was on charge and when it was not on charge.

(c) Cells treated with AD-X2 when on charge presented a markedly different appearance from those on charge without treatment. The gas evolved in the treated cells was in the form of minute bubbles, while that evolved in the untreated cells was in bubbles estimated to be 4 to 10 times as large as those evolved in the treated. The liquid surface in the treated cells presented a different appearance from that in the untreated cells.

(d) The surface of a negative plate in a treated cell was distinctly softer than the surface of a similar plate in an untreated cell, both having been subjected to the same charge conditions. Often, softening was first evident near the edges of the negative plate.

(e) Under similar charge conditions, treated cells lost less liquid than untreated cells.

(f) Under identical conditions of charge, treated cells operated 2 to 5 degrees Fahrenheit cooler than did untreated cells.

(g) During charge, and starting with discharged cells, treated cells gave higher hydrometric readings than did untreated cells, the differences being greater than could be explained on the basis of the treating material added.

(h) When AD-X2 was added to a cell containing a diluted electrolyte, as in a discharged cell, the conductivity of the electrolyte increased. (Resp. Ex. 39, p. 2)

23. Under the heading "Limitations of Laboratory Results" the report contained the following:

The difficulty of duplicating in the laboratory results obtained in the field is well recognized in engineering work. The laboratory evaluation of a material such as AD-X2 is further complicated by the great variation in the samples subjected to test, even though every effort be made to so select test units as to minimize such variation. Usually, an evaluation of how a product will act under field conditions can be obtained only after extensive laboratory experimentation. Even after such experimentation, it is common practice in engineering work to subject products to field tests. How a given innovation will perform under use conditions is the true test of its worth. For this reason, laboratory findings must be supplemented by field use data if a true evaluation is to be obtained. (Resp. Ex. 39, p. 10.)

24. Professor James A. Beattie, Professor of Physical Chemistry in the Institute, also testified. Professor Beattie had observed the tests made by Professor Weber and had also made personally some experimental studies of the effect of respondents' product on lead-acid batteries. His views were summarized as follows in a letter addressed to Professor Weber:

In conclusion, I would say that the addition of AD-X2 certainly does have an effect on the behavior of a lead acid battery. From my brief contact with the work, I cannot say that this effect is correlated with a beneficial action from the standpoint of the normal use of such a battery. I feel that the latter can be determined only after the examination and statistical evaluation of extensive field tests. (Resp. Ex. 39, p. 25.)

25. The soundness of the Institute's conclusions from a statistical viewpoint is attested by two other members of the faculty of the Institute—Professor G. P. Wadsworth and Dr. J. G. Bryan, both of whom testified in the proceeding.

26. The views of the Institute as to the duplication of field conditions in the laboratory, and as to the necessity for field tests in evaluating respondents' product, apparently are not shared by the scientific witnesses introduced in support of the complaint. The view of the Commission's experts appears to be that laboratory tests, properly conducted, can duplicate field conditions sufficiently to make such tests reasonably accurate as to results which would be obtained in the field and, specifically as to respondents' product, that there is no necessity of conducting field tests in order to determine the merit of the product.

27. On the other hand, tending to support the Institute's view is a statement in the "Battery Service Manual," official publication of the Association of American Battery Manufacturers, that "It is not possible to duplicate car service conditions in the laboratory * * *." (Resp. Ex. 62, p. 11.)

28. A fair appraisal of the Institute's tests would appear to be that, while the tests do not purport to determine the commercial utility of respondents' product, they do indicate definitely that in the laboratory the product is capable of affecting a battery beneficially and to a significant degree. This is in sharp contrast to the Commission's scientific evidence, which is to the effect that the product is neutral, incapable of any significant effect.

29. At the instance of respondents, tests of their product were also made by the United States Testing Company, Inc., of Hoboken, New Jersey, a commercial testing laboratory which has been in business some seventy-five years. The tests were made under the supervision of one of the company's engineers, Mr. A. S. Mindes, who holds a Bachelor of Science degree in electrical engineering from New York

University. The tests included tests made both in Baltimore, Maryland, and in the company's laboratories in Hoboken. The Baltimore tests were begun on October 5, 1951, and concluded three days later, on October 8, 1951. These tests, which were made at the place of business of respondents' Baltimore distributor, consisted essentially of tests on eighteen new "shelf-sulfated" batteries, that is, batteries which although unused had through age developed a substantial amount of sulfation.

30. The eighteen batteries were divided into two comparable groups of nine each, those in one group being treated with respondents' product and those in the other group being left untreated. All batteries in both groups were then charged for twenty hours, after which some of the batteries from each group were measured for specific gravity and cell voltage and then subjected to cranking tests, that is, they were tested to ascertain how long they would crank an automobile motor before becoming discharged. While recognizing that the Baltimore tests were not extensive enough to warrant definite conclusions as to the merits of respondents' product, the company did feel that the results of the tests indicated that the addition of the product to mechanically sound sulfated batteries serves to increase their charging and discharging efficiency, and to cause them to operate at slightly lower temperatures during charging.

31. The tests of the product made by the company in its laboratories in Hoboken were made during the latter part of 1952, and were much more extensive than the Baltimore tests. In these later tests three groups of batteries were used, two of the groups comprising ten batteries each and the third group twelve batteries. The twelve battery group and one of the ten battery groups were made up of discarded sulfated batteries. The other group of ten was made up of new batteries. One-half of the batteries in each group were treated with respondents' product, the remaining half being left untreated. After subjecting the batteries to various tests, all batteries in each group being subjected to the same testing procedure, and after visual inspection of the batteries, the company concluded that the use of respondents' product results in substantial benefit to lead acid batteries, the conclusions being summarized as follows:

The use of Battery AD-X2 as an additive is effective, because it increases the charging and discharging efficiency, reduces the internal operating temperatures, does not harm lead acid batteries, and reduces shedding of active material. (Resp. Ex. 55, page 1.)

32. Testimony on behalf of respondents was also given by Professor S. E. S. El Wakkad, who is Professor of Physical and Inorganic Chemistry in Cairo University, Cairo, Egypt, from which institution

he holds a Ph.D. degree. He is presently a research fellow in the University of Pennsylvania and is also consultant to the Electric Storage Battery Company, of Philadelphia, makers of the Exide battery. Professor El Wakkad testified that sulfation is a well recognized cause of battery failure, that among its other harmful effects sulfation increases the resistance of a battery to charging and increases the "gassing" of the electrolyte, which in turn causes peeling or shedding of the active materials from the plates. He concurred in the view of the Massachusetts Institute of Technology as to the difficulty of reproducing field conditions in the laboratory. It will be recalled that respondents' product contains a number of trace elements, and Professor El Wakkad testified that the presence of trace elements can materially affect electro-chemical processes; that mixtures of magnesium sulfate and sodium sulfate aid in the reconversion of lead sulfate to lead and lead peroxide, and that this action may be due to the presence of trace elements in the compounds.

33. Finally, there was testimony on behalf of respondents by Dr. Bryan E. Conway, Assistant Professor of Chemistry in the University of Pennsylvania. Dr. Conway holds a number of academic degrees, including a Ph.D. degree from London University, and has done extensive research and lecture work both in London and in the United States. He has been particularly interested in the subject of the effects of trace elements on electro-chemical processes. He concurred in Professor El Wakkad's view that the presence of trace elements may materially affect such processes, and that compounds of magnesium sulfate and sodium sulfate may assist the reconversion of lead sulfate to lead and lead peroxide.

USER TESTIMONY IN SUPPORT OF COMPLAINT

34. Eleven persons who had used respondents' product testified in support of the complaint. The witnesses were:

(a) A motorcycle dealer and repairman in New York City who had used the product in several motorcycle batteries, the batteries being from two to three years old.

(b) The master mechanic of the Fire Department of West Hartford, Connecticut, who used the additive in two batteries, one two years old, the other sixteen months old.

(c) A battery shop operator in Boston, Massachusetts, who treated three batteries with the product.

(d) The garage supervisor of the Railway Express Agency in Boston, who used the product in twenty batteries, ten of them being new batteries and ten used batteries.

(e) A chemist in the employ of the Bell Telephone Company in Allentown, Pennsylvania, who used the additive in one new battery in his own automobile.

(f) An automobile dealer and garage operator in Berlin, Pennsylvania, who treated eight used, sulfated batteries with the product.

(g) A battery shop operator in Pittsburgh, Pennsylvania, who used the product in ten or twelve batteries.

(h) A foreman in a plumbing equipment plant in Cleveland, Ohio, who purchased one package of the product, kept it some ten months, and then used it to treat the battery in his own car.

(i) The maintenance superintendent of a glass manufacturing plant in Indianapolis, Indiana, who used the additive in one battery.

(j) A battery shop operator in Detroit, Michigan, who treated three batteries with the product.

(k) A battery man for a large trucking company in Chicago, Illinois, who used the additive in one battery.

35. The testimony of these witnesses in substance was that they had observed no benefit from the use of the product, certainly no significant benefit. It appears, however, that in at least three of the eleven instances respondents' directions for use of the product were not followed, particularly as to the amount used in certain large-type batteries. In a fourth instance, the testimony is weakened materially by reason of the fact that the witness claimed that the additive had seriously damaged the battery. There is no suggestion in any of the scientific evidence, either for the Commission or for respondents, that the product is capable of such result. In a fifth instance, the witness, subsequent to his testimony, placed a new order for a substantial amount of the additive, apparently being in doubt as to the adequacy of his former test of the product.

USER TESTIMONY ON BEHALF OF RESPONDENTS

36. Some forty-five users of the product testified on behalf of respondents. The witnesses were:

(a) The chief electrical engineer of Gillette Safety Razor Company, Boston, Massachusetts.

(b) The plant superintendent of United-Carr Fastener Corporation, Boston, manufacturers of metal fasteners.

(c) The experimental and development engineer of Market-Forge Company, Boston, manufacturers of heavy industrial electric trucks and hotel and hospital equipment.

(d) The operations supervisor of Lever Brothers Soap Company, Boston.

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(e) The electrical engineer of Quincy Market Cold Storage and Warehouse Company, Boston.

(f) The operating engineer of the Watertown, Massachusetts, plant of the same company.

(g) The plant engineer of the Walter Baker Chocolate Division of General Foods Corporation, Boston.

(h) A battery repairman in the employ of Atlantic Battery Company, Boston, manufacturers of batteries.

(i) The foreman of transportation at the Naval Air Station, Quonset Point, Rhode Island.

(j) The shop foreman of the Electric Lines and Lights Department of the City of Somerville, Massachusetts.

(k) The chief electrician of the Boston Army Base.

(l) The fleet superintendent of Capital Motor Transportation Company, Boston.

(m) The plant engineer of Reed & Barton Corporation, silver-smiths, Taunton, Massachusetts.

(n) An electrician in the Hyde Park, Massachusetts, plant of Westinghouse Electric Company.

(o) The chief electrician of a paper manufacturing plant, Boston.

(p) The public buildings superintendent, United States Public Health Service Hospital, Brooklyn, New York.

(q) A wholesale and retail dealer in spare automobile parts, including batteries, Washington, D. C.

(r) A battery shop operator in Arlington, Virginia.

(s) The maintenance superintendent of the Wichita Transportation Corporation, operator of the public transportation system in Wichita, Kansas.

(t) The batteryman for the same company.

(u) The master mechanic of a large construction company, Oakland, California.

(v) The engineer in charge, Radio Division, Electrical Department of the City of Oakland.

(w) A batteryman who has worked in battery shops in several Navy installations.

(x) A witness who is in charge of the rebuilding of used equipment for a tractor and equipment corporation in California.

(y) The chief of the Planning Section of the United States Army Transportation Corps in the San Francisco area, the witness having formerly been Port Engineer for the San Francisco Port of Embarkation and also maintenance engineer for several large industrial and shipping companies.

(z) The electrical engineer for the Port of Oakland, California.

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- (aa) A service station and battery shop operator in Oakland.
- (bb) The electrician for Cutter Laboratories, Berkeley, California.
- (cc) A witness who has served as master mechanic for several construction and transportation companies in California.
- (dd) The general manager of the bus lines in the City of Vallejo, California.
- (ee) The maintenance superintendent of the same company.
- (ff) The foreman of the battery shop in the Benicia, California, Arsenal of the United States Army.
- (gg) The maintenance superintendent of a cement manufacturing plant in Permanente, California.
- (hh) A general contractor in Crockett, California.
- (ii) A businessman in Crockett, California, who is a sponsor of the Sea Scouts, a branch of the Boy Scouts of America, and who testified as to the use of respondents' product in batteries of several boats belonging to the organization.
- (jj and kk) Two employees of a shipyards company in San Francisco who testified as to the use of respondents' product in batteries in a number of ships and automobiles.
- (ll) The chief engineer of a large plywood manufacturing plant in Eureka, California.
- (mm) A witness who formerly operated a battery shop in San Francisco and who had also had wide experience with batteries in the United States Army.
- (nn) A paving contractor in Washington, Pennsylvania.
- (oo) A manufacturer of storage batteries in Cleveland, Ohio.
- (pp) A contractor in Indianapolis, Indiana.
- (qq) A battery shop operator in Detroit, Michigan.
- (rr) A building contractor in Grand Rapids, Michigan, who formerly operated a battery shop.
- (ss) A teacher of automotive mechanics in a high school in Chicago, Illinois, who is also technical editor of two battery trade publications and who has made numerous tests of respondents' product in the high school workshop.

37. The testimony of these witnesses in substance was that they had made extensive use of respondents' product in their respective plants and motor vehicles, and that they had observed definite and substantial benefits resulting from its use; that the product caused their batteries to last longer, take a charge better, operate more efficiently, with less sulfation, less heat, less water loss, less "gassing" of the electrolyte, less shedding of active materials from the plates, etc. There was substantial testimony to the effect that through the use of the additive battery costs had been materially reduced. Numerous

instances were cited by the witnesses in which batteries which apparently had lost their usefulness and were about to be discarded were, through the use of the additive, reclaimed and restored to active service. Nor was the testimony of the witnesses limited to automotive batteries. Some of the strongest testimony was in regard to large stationary batteries and batteries used in "fork-lift" or industrial trucks, that is, trucks used inside industrial plants for moving and stacking materials and commodities. Both of these types of batteries are frequently very expensive, costing up into the hundreds or even thousands of dollars.

38. In addition to this testimony, there was testimony from some five of respondents' distributors in various areas as to favorable results observed by them from the use of the product, the testimony of the distributor in the Boston area being particularly impressive, despite his obvious and frankly acknowledged interest in the proceeding.

39. There was also extended testimony from William M. Hager (already referred to), formerly Executive Vice-President of the corporate respondent, and from respondent Jess M. Ritchie. Mr. Hager is a graduate of the engineering school of Princeton University and has had wide experience in engineering and construction work, including the operation and maintenance of lead-acid batteries. There is no doubt that from a practical viewpoint Mr. Ritchie is also an expert on lead-acid batteries. Both of these witnesses testified as to many tests made of their product in their place of business in which favorable results had been obtained, and also as to numerous instances in which they had treated batteries with the product for customers and obtained substantial and beneficial results.

CONCLUSIONS

The issue here presented is a difficult one. There unquestionably is very substantial scientific evidence supporting the complaint, the most impressive being that supplied by the National Bureau of Standards, for which agency the examiner has great respect. But there is also substantial scientific evidence on behalf of respondents, particularly that supplied by the Massachusetts Institute of Technology, probably the outstanding institution of its kind in the United States. The greater weight of the scientific evidence is on the side of the complaint.

On the other hand, the overwhelming weight of the user testimony is with the respondents. And it is highly important to recognize that in this case the user testimony is not mere "consumer" or "public" testimony as those terms are usually understood in Federal Trade Commission proceedings. Here respondents' user witnesses are not mere members of the general public; with few exceptions they are

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plant superintendents, shop foremen, chief electricians, master mechanics, battery shop operators, etc. They are, from a practical viewpoint, experts on lead-acid batteries. Their aggregate experience with respondents' product includes thousands of batteries. No other case has come to the examiner's attention in which so large a volume of substantial and reliable user testimony was adduced.

From a scientific viewpoint there are of course valid objections to this user testimony. The most serious is that usually controls were not maintained, that is, untreated batteries maintained along with the treated, so that any differences in the behavior of the two groups could be observed. A further objection is that usually adequate records were not maintained. But after recognizing the validity of these objections and discounting the testimony accordingly, there still remains a very substantial body of reliable and probative evidence attesting the merit of the product. And such evidence would appear to be particularly significant and helpful in the present case, in view of the conflict in the scientific evidence.

Considering the record as a whole, it is concluded that the complaint has not been sustained by the greater weight of the evidence. The legal principle decisive of the case is that of the burden of proof.

ORDER

It is ordered, That the complaint be, and it hereby is, dismissed.

OPINION OF THE COMMISSION

By ANDERSON, Commissioner:

The hearing examiner held that the allegations of the complaint were not sustained by the greater weight of the evidence, and the initial decision filed by him provides for dismissal of this proceeding. The appeal of counsel supporting the complaint requests that we reverse that decision. Respondents also have filed appeal. Their appeal does not challenge the results reached below but interposes objection to certain of the initial decision's findings and conclusions and excepts to various rulings made by the hearing officer under which evidence was received in instances and excluded in others adversely to respondents' contentions in respect thereto.

The respondents manufacture and sell in interstate commerce an additive known as Battery AD-X2, for use in lead-acid storage batteries. Respondents were insistent upon protection of the trade secret concerning the formula and making of Battery AD-X2. The objection of counsel for respondents to the request made by counsel supporting the complaint for the formula was sustained by the hearing examiner. However, admissions by respondents in their answer to

the complaint, and a number of analyses of record, established the fact that magnesium sulfate and sodium sulfate are its principal ingredients but that additionally present in small quantities are magnesium oxide and barium sulfate and a number of "trace" elements.

The complaint under which this proceeding was instituted charges that the respondents have made various misrepresentations in their advertising as to the benefits afforded by use of the product. Illustrative of the various advertising representations which the complaint alleges to be false and misleading, and in violation of the Federal Trade Commission Act accordingly, are statements to the effect that AD-X2 will restore mechanically sound dead batteries to useful life, will increase the power and capacity of sulfated batteries which are free from mechanical defects and will lengthen the life of new batteries. We concur in the hearing officer's conclusions to the effect that the complaint's allegations as to the import and meaning of the challenged advertising statements are substantially correct interpretations. Since the respondents' legal responsibility for their dissemination is clear from the record, the issues remaining for decision concern the truth or falsity of the questioned advertising statements; and the basic question presented in this connection relates to whether the use of the respondents' additive in lead-acid storage batteries will significantly combat, reduce or prevent sulfation and serve thereby to beneficially influence their life or performance.

The formation of lead sulfate in a battery cell is a normal process and integral to the release of its electrical energy. When it forms excessively as a hard and brittle coating on the plates, whether as a result of aging or improper operational conditions, this process is known as sulfation. Conflicting views were expressed by various witnesses as to the frequency with which sulfation is responsible for battery failure, and the hearing examiner concluded that sulfation is one of its major causes. Because it is undisputed that battery failure may result from sulfation, further consideration of the evidence bearing on sulfation's role of relative frequency in that regard appears unwarranted. It is clear, too, that its harmful effects, in instances, include loss of active material from the plates, excessive heat, buckled plates and formation of sediment or "mud" in the bottom of the cells, with possible short-circuiting of the battery.

During the hearings, both counsel supporting the complaint and the respondents introduced testimony and evidence relating to laboratory experiments and scientific tests and studies, many of which were designed to compare the behavior of batteries or cells treated with the respondents' product with similar untreated units. Since the contentions advanced in the appeals relate in substantial part to the

conclusiveness and weight which we should accord to the evidence concerning them, brief summaries in respect thereto are appropriate.

The experimental results submitted by counsel supporting the complaint included reports of tests conducted at the National Bureau of Standards. Those experiments were performed at intervals over approximately a period of a year ending in 1953, five being designated as electrical tests and five as physical chemistry tests. Both new batteries and used batteries, including discarded batteries capable of taking a charge, were utilized in the course of those investigations. Also received into the record was testimony relating to experiments conducted by Dr. Reginald S. Dean, who operates a research and testing laboratory in Riverdale, Maryland, to others by Mr. William H. Hand, a chemist, physicist and manufacturer of batteries, who has a research laboratory in Nyack, New York, and to those performed by Dr. T. P. Dirkse, a professor of chemistry.

The scientific evidence relating to laboratory tests, as presented by respondents, included tests conducted at the Massachusetts Institute of Technology at the request of the Select Committee on Small Business of the United States Senate. Received likewise were others conducted under the supervision of an engineer on the staff of the United States Testing Company, Inc., Hoboken, New Jersey, which is a commercial testing laboratory.

The conclusions and interpretations drawn by the National Bureau of Standards from its tests and experiments were that the respondents' product has no significant beneficial effect on lead-acid batteries, and is without merit. The studies conducted by Dr. Dean, Mr. Hand and Dr. Dirkse were less extensive in scope, but their conclusions likewise were to the effect that their respective tests did not indicate that any significant or beneficial effects are afforded by use of respondents' product.

On the other hand, the report on the tests conducted at the Massachusetts Institute of Technology included conclusions to the effect, among others, that cells treated in the experiments showed larger capacities than untreated ones, that treated cells lost less liquid and that decreases in their sediment levels were visually noted, and that the treated category operated at temperatures slightly cooler than the untreated cells. While the report stated that the experiments indicated that the product affected battery behavior, implicit in the report was an acknowledgment to the effect that the range of experimental conditions covered by the tests was insufficient for conclusions as to commercial utility of the product. According to that report and the testimony relating to these studies, any correlation between effects observed in the experiments and possible benefits under conditions of

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normal use were matters to be determined only after examination and statistical evaluation of extensive field tests. The report submitted by the United States Testing Company, Inc., was to the effect that respondents' product is an effective additive for lead-acid storage batteries and serves, among other things, to increase charging and discharging efficiency, and reduce internal operating temperatures. Those studies were begun in October, 1951, and completed in January, 1953.

In their appeal, respondents contend that the reports of tests conducted by the National Bureau of Standards and a summary in respect thereto were erroneously received as exhibits. Many of the Bureau's personnel who participated appeared as witnesses in this proceeding and testified as to their roles in the conduct of those experiments. These challenged exhibits were competent and their admission was proper. Respondents also request, in effect, that we find that the Bureau's experiments were uncertain and dubious in their nature and results, and that the range of testing conditions did not reach areas most relevant to normal operating or service conditions or pertinent to respondents' advertising claims.

As found by the hearing examiner, however, the Bureau's studies covered a wide range. The tests were designed in a manner which afforded evaluations and determinations as to the effect of respondents' product on sulfation, battery life, storability of batteries, temperature, water loss, capacity, sediment, charge and discharge, and solubility of lead sulfate in battery electrolyte. Being comparative tests, they of course, were not designed to furnish data as to the life expectancies of treated and untreated batteries in terms of years and months. We think that the tests conducted by the National Bureau of Standards must be regarded as well designed and conducted with proper controls, and, as did the hearing officer, we reject as wholly unfounded respondents' challenges to the fairness and objectivity of the personnel participating in the tests. In our view, there is ample record basis for conclusions that the interpretations of the test results to which their testimony related represented their sincere opinions on those matters, and respondents' contentions to the contrary are rejected.

It was concluded in the initial decision that, of the scientific evidence received in the hearings, greater weight should be accorded to that presented by counsel supporting the complaint. On the other hand, the hearing officer was impressed by the testimony of various users who were called by the respondents and recounted their experiences with the product. Numbered among the 45 witnesses called in this category by the respondents were plant and maintenance superintendents, shop foremen, chief electricians, and battery shop operators.

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In view of the conflict in the scientific evidence, the hearing examiner deemed the user evidence attesting to product merit to be particularly significant, and he, accordingly, held the complaint's allegations to be unsustained by the greater weight of the evidence. Recognizing that the burden of proof is on the proponent of the complaint, we regard the hearing examiner's order of dismissal as sound and correct in the circumstances of this case. Counsel's appeal therefrom is denied and the order below is being affirmed.

To the extent that certain of our foregoing determinations, in effect, affirm various findings contained in the initial decision adversely to the contentions made by the respondents in their appeal, respondents' exceptions to those findings are denied; and also without merit are the additional objections interposed by respondents to other findings and conclusions of the hearing officer. Respondents' exceptions to designated evidentiary rulings of the hearing examiner likewise have been considered. These rulings, however, are free from prejudicial error and based on valid legal grounds. None of the respondents' exceptions to procedural matters herein are well taken, and they are denied in their entirety.

The appeals are denied and the initial decision affirmed, and our accompanying order provides for dismissal of the complaint.

Commissioner Kern did not participate in the decision of this matter.

FINAL ORDER

Respondents and counsel supporting the complaint having filed their cross appeals from the initial decision of the hearing examiner in this proceeding; and this matter having come on to be heard upon the record including briefs and oral argument; and the Commission having rendered its decision denying said appeals and affirming the initial decision:

It is ordered, That the complaint herein be, and it hereby is, dismissed.

Commissioner Kern not participating.

Decision

IN THE MATTER OF

R. D. ANDERSON DOING BUSINESS AS GUARANTEED
SILVERWARE DISTRIBUTORS AND AMERICAN
SILVERWARE BUREAUORDER, ETC., IN REGARD TO THE ALLEGED VIOLATION OF THE
FEDERAL TRADE COMMISSION ACT*Docket 6200. Complaint, Apr. 8, 1954—Decision, May 17, 1956*

Order requiring a seller in Mayfield, Ky., of silverware and certificates redeemable in silverware, to cease representing falsely through his agents employed to solicit retail dealers—

- (1) That he was the agent of the International Silver Co. which had adopted a redeemable certificate sales plan to advertise its well-known "Rogers Bros. 1847" silverware, and that that brand of silverware would be furnished to holders of certificates;
- (2) That he would furnish to the purchaser of certificates a complete set of 52 matched pieces of such silverware in a tarnish-proof chest for display purposes, after which it would be the property of the purchaser; and
- (3) That dealers approached by his salesmen had been specially selected by him to distribute such certificates in a specific trade area and that the redemption plan would be made available to only one purchaser in that area.

Mr. Frederick McManus for the Commission.

INITIAL DECISION BY JAMES A. PURCELL, HEARING EXAMINER

Pursuant to the provisions of the Federal Trade Commission Act, the Federal Trade Commission on April 8, 1954, issued and subsequently served its complaint upon the respondent named in the caption hereof, charging him with the use of unfair and deceptive acts and practices and unfair methods of competition in commerce within the intent and meaning of said Act. On June 1, 1954, respondent filed answer to the complaint which, in effect, denied those allegations of the complaint charging violations of the Act.

Thereafter hearings were held in regular course at which testimony and other evidence in support of the allegations of the complaint were received by the above-named Hearing Examiner theretofore designated to act by the Commission, said testimony and evidence being duly recorded and filed in the office of the Commission. Respondent, while exercising his right of cross-examination of Commission witnesses, offered no testimony or evidence in opposition to the charges contained in the complaint.

On May 10, 1955, counsel in support of the complaint rested his case in chief and on September 19, 1955, at a regularly scheduled hear-