

GENERAL SCIENCE

Standards Bureau Upheld

Special committee of National Academy of Sciences finds "without reservations" that work of National Bureau of Standards in lead acid storage battery testing is excellent.

► IN SUPPORTING the position of the National Bureau of Standards that the battery additive AD-X2 "is without merit," the committee of the National Academy of Sciences also made the following points:

AD-X2 behaves like a corresponding mixture of sodium and magnesium sulfates, and is substantially neutral in its effect upon a lead acid storage battery.

No new tests are needed as they "would do no more than reinforce the considerable reliability" of the conclusion drawn by the committee from the information now available.

No evidence was found that the personnel of the National Bureau of Standards were not objective but there was ample evidence of healthy objectivity. (Secretary of Commerce Sinclair Weeks in testimony March 31 before the Senate Committee on Small Business said: "The National Bureau of Standards has not been sufficiently objective, because they discount entirely the play of the market place . . .").

If benefits of AD-X2 were as claimed, laboratory tests would reveal them.

The report of the Massachusetts Institute of Technology casts no adverse reflections on the quality of the work of the Bureau of Standards on AD-X2.

Without reservations, the work of the

Bureau of Standards in the field of lead acid storage battery testing is excellent.

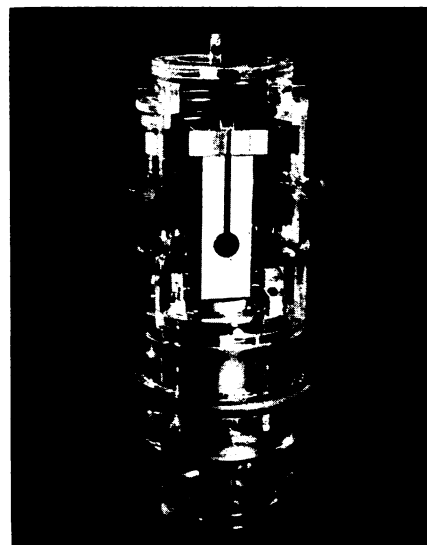
There was "nothing mysterious or remarkable in the behavior of either AD-X2 or sodium and magnesium sulfates. In all cases the effects observed corresponded to well-known laws of physical chemistry."

Since the 1880's there have been frequent reports of additives. Many of them contained sodium and magnesium sulfates, which is not surprising since it appears that these materials are the least harmful chemicals that could be added to the battery electrolyte.

Usually testimonials are not given much weight, especially when controlled testing can be used, but in the present controversy they have played a major role. If testimonials are at variance with the results of well-designed controlled tests, the latter offer the only real proof.

The Academy committee consisted of ten scientists with Dr. Zay Jeffries of the General Electric Co. chemical division as chairman. It made its report and investigation at the request of Secretary Weeks after the AD-X2 controversy resulted in the "firing" of Dr. A. V. Astin, director of the National Bureau of Standards, who was, however, reinstated by Secretary Weeks in August.

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SENSITIVE "HEART"—The U-shaped prongs at center of this cutaway of the vibratory gyro are the key to the device. The vibrating U, which sings like a tuning fork, is analogous to the spinning wheel that operates conventional gyroscopes. Experimental models such as this can detect motions as slow as earth's rotation or as fast as 100 revolutions per minute or more.

PHYSICS

New Gyro Resembles Tuning Fork, Not Top

► A NEW gyroscope under development in Great Neck, N. Y., resembles a humming tuning fork, not a spinning top.

Known as a "vibratory gyroscope," the device is one of a series created by Sperry Gyroscope engineers at the U. S. Navy's request. It consists of small, electrically driven tines that swing to and fro rapidly like the prongs of a tuning fork. Engineers report it can measure rates of turn as slow as the earth's rotation and as rapid as 100 revolutions a minute.

Although several years of development may pass before the device is refined for simple application, engineers reported to the Institute of the Aeronautical Sciences that the device probably will supplement the present spinning gyroscope in long-range navigational equipment.

The inherent features of an experimental tachometer, which incorporates the new design gyro, were listed as these: a sensitivity only to rotation about a single axis, a wide scale through which measurements are possible with accuracy, a quick response to turning movements, a long life expectancy since it has few moving parts, and extreme ruggedness that fortifies it against vibration and shock encountered in the most grueling applications.

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PSYCHOLOGY

Jet Pilot Reaction Time

► WHEN THE pilot of a jet plane sights an enemy jet approaching, it takes at least one-fifth of a second for his eye-nerve-muscle system to go into appropriate action, Dr. Leonard Carmichael, psychologist and secretary of the Smithsonian Institution in Washington, stated in Cambridge, Mass.

"It is very doubtful whether the best human reaction time of an ace pilot of the Korean war was different from that of a leading archer of the New Stone Age," Dr. Carmichael said in the Arthur D. Little memorial lecture at the Massachusetts Institute of Technology. But the jet plane, he pointed out, can move a lot farther in that fifth of a second than could an arrow.

The jet pilot, Dr. Carmichael explained, cannot by thought, education or wishing speed up beyond a certain fixed point the time his nerves must take in responding to the sight of the enemy. So it is up to those designing new airplanes, or even new political and economic systems, to learn what

are man's inborn capacities and limitations. The differences between individuals must be recognized, and advantage be taken of the special abilities of the talented.

"Creative research of the highest order in the quantitative physical sciences," he said, "can be expected only from selected individuals in the upper two percent of the population in intellectual ability.

"Such rare and valuable talent bearers should be nurtured and helped to use their inborn capacities for the welfare of our scientifically based age.

"The world cannot afford to squander its scientific manpower!

"It is particularly wasteful of human resources when individuals recognized as singularly talented, and perhaps well trained in certain scientific or technical specialties, are allowed or required either in military or civilian life to perform tasks that others can do as well or even better."

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