

Copy to Mr. Axtell

January 28, 1947

Mr. Clifford W. Axtell
Axtell Block
Thermopolis, Wyoming

Dear Mr. Axtell:

The results of the U. S. Public Health Service investigation of the health hazard from leaded gasoline, to which I referred in my statement of January 15th, were published as Public Health Bulletin No. 163 dated 1926.

The following is quoted from page 109 of this Bulletin.

- "1. Drivers of cars using ethyl gasoline as a fuel and in which the concentration of tetraethyl lead was not greater than 1 part to 1,300 parts by volume of gasoline showed no definite signs of lead absorption after exposures approximating two years.
2. Employees of garages engaged in the handling and repairing of automobiles and employees of automobile service stations may show evidence of lead absorption and storage, as indicated by the lead content of the feces and the appearance of stippled cells in the blood. In garages and stations in which ethyl gasoline was used the amount of apparent absorption and storage was somewhat increased, but the effect was slight in comparison with that shown by workers in other industries where there was a severe lead hazard (Group E) and for the periods of exposures studied was not sufficient to produce detectable symptoms of lead poisoning.
3. In the regions in which ethyl gasoline has been used to the greatest extent as a motor fuel for a period of between two and three years no definite cases have been discovered of recognizable lead poisoning or other disease resulting from the use of ethyl gasoline."

The committee who made the report properly called attention to the fact that the investigation was made after only a two year period of distribution of leaded gasoline and that the report covered only a two year period of exposure of the investigated individuals. They consequently state (page 110)

that "It remains possible that, if the use of leaded gasoline becomes widespread, conditions may arise very different from those studied by us which would render its use more of a hazard than would appear to be the case from this investigation". They recommend that further investigations be pursued at later dates.

Later investigations were made by groups associated with the Eichberg Laboratory of Physiology of the University of Cincinnati, and reported in 1927 and 1928 respectively to the U. S. Public Health Service. In 1932 further work on the problem and a review of the 1927 and 1928 report was reported by the same group which was by that time associated with a new department within the University of Cincinnati - the Laboratory of Applied Physiology.

Due to a wider experience in the field involved, further refinement in analytical procedures and wider choice of subjects, the later reports can be regarded as more accurate than the very early reports. The subjects available for the 1932 report had not only had a greater exposure in terms of time, but presumably a greater quantitative exposure in terms of lead because of the increasing use of leaded gasoline.

These later reports which were accepted by the Public Health Service all show that no lead is absorbed by those who are subjected to the greatest exposure to leaded gasoline either by skin contact or vapor inhalation.

The following is quoted from the report of 1932.

"Danger from absorbing lead through the skin through contact with Ethyl Gasoline may now be said to be non-existent."

Adequate comment on the finding of urine lead after the interval of several years after proved exposure would require long discussion. However, it can be briefly stated that urinary lead drops off rapidly for the first few months after exposure has ceased and as time progresses, the rapidity of secretion lessens and more gradually approaches normal figures. In general, the greater the absorption has been, the more rapid the original secretion will be. In the case at issue, if there had been significant amounts of lead absorbed, and that absorption had ceased at the time the subject quit his job, the urinary lead should have reached a normal level in less than several years. If the urinary lead found in this instance was significantly high, I would immediately believe that the sample was contaminated or that there was an undetermined source of lead which was occurring at or near the time of the determination.

The original request for information came to us from Dr. B. B. Reeve of the Standard Oil Company of Indiana.

We would like to have the name or names of the Mayo Clinic physician or physicians which appear on the Clinic letter to the Court. Will you be good enough to furnish us with this information at your earliest opportunity?

Very truly yours,

LWS:is

Lester W. Sanders, M.D.

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