

December 18, 1952

AIR MAIL

Dr. Henry R. O'Brien
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The Foreign Service of the USA
American Embassy - TCS
Addis Ababa
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Dear Henry:

Thanks for your letter of November 21. My reply is slow because of the pressure of daily activities that encroach upon my correspondence.

I shall be unable to do anything about the situation which you describe, with the exception of the matter of the signs on the pumps. From time to time, there is some slip-up in this matter, outside of the USA, in places where the situation is not understood. The trouble is that it is fairly well recognized in the petroleum industry that these signs are unnecessary from the aspect of human hazard. They have come to be a regular part of the routine of gasoline distribution in most places, through the efforts of the distributors of ETHYL fluid, where they serve to keep people, so far as possible, from using leaded gasoline for purposes for which it was not designed. This is more important from the aspect of damage to equipment (stoves, lamps, blow torches etc.) than from the risk of lead poisoning. It is now well established that no real risk exists, except under most unusual conditions, such as those that developed out of gross and emergency mishandling of high octane gasoline. I do not mean to condone failure on the part of distributors to follow the conventional procedure required by Ethyl Corporation and Associated Ethyl Company, Ltd., and I should not make such a remark as the above to anyone in the industry. Rather I am informing you, as a physician, that the hazard of lead poisoning in connection with the conventional handling of leaded gasoline does not exist. If it did, there would have been world-wide difficulties by this time, and the business would have folded up, for it is not possible to secure the observance of precautions in the handling of such a common fuel as gasoline.

The statement made above applies without reservation to the practice of siphoning gasoline by mouth which you have described. There is risk in this practice - that of aspirating gasoline into the lungs where it may cause a gasoline pneumonitis, and that of swallowing gasoline, which causes an acute gastro-enteritis - but it is not the risk of lead poisoning. It is

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not possible to consume or absorb enough leaded gasoline to cause lead poisoning, because of the low concentration of the lead and the high toxicity of gasoline itself.

It seems probable, from what you have said, that you are not aware of the fact that tetraethyl lead is not absorbed through the skin when commercial gasoline comes in contact with the skin. The concentration of the lead in the gasoline is too low as has been demonstrated experimentally and in practice. The concentration of lead in the gasoline has to be more than quadrupled to provide a situation that permits of the significant absorption of lead through the skin. Moreover, the volatility of the lead compound is so low, as compared with that of the gasoline, that only insignificant and practically unmeasurable amounts of tetraethyl lead appear in the vapor overlying leaded gasoline. In these two properties lies the safety of the product, automatically, and it is only under conditions of great spillage or spraying of leaded gasoline - or its use for dry cleaning, when the incompletely dried clothes are hung up to dry thoroughly in an enclosed room or space - when the gasoline evaporates down to the last fraction, that there is a real danger in the handling of leaded gasoline.

I believe that these facts will relieve your mind, with respect to the apparent hazard which you have observed. This is no reason for not doing what can be done to ensure proper handling of leaded gasoline, but it takes something away from the urgency of the matter.

It is too bad you are so far away from home at Christmas time, and I send you greetings and best wishes. They will be of little cheer to you, perhaps, but they reveal my good intent.

Sincerely yours,

Robert A. Kehoe, M. D.

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