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New York, N.Y.

April 1, 1925.

Col. R. R. Sayers,
Bureau of Mines Laboratories,
Forbes Street,
Pittsburgh, Pa.

My dear Col. Sayers:

I think it would be well for our Committee to have another meeting at the Bureau of Mines in the near future.

Dr. Flinn is finding considerable lead in his experiments in the excreta of the various animals and some of the animals are showing paralysis. I think our animal experiments, as far as they concern the skin application of Ethyl Gasoline, have demonstrated the certainty of its absorption through repeated local application and it seems to me that this fact, once established, is all that we need to know on the experimental side, from the public health point of view. It would be of great interest, of course, to find the maximum and minimum dosage, etc. in different animals, but as far as the public is concerned, if a garage man gets any lead in his system, it is comparatively immaterial how long he has been exposed or what doses he may have had. In any event, those facts would be difficult or impossible to determine in a given case.

I believe that more examinations should be made of garage men and others who may have been exposed for a year or more to the handling of Ethyl Gasoline. I am, therefore, personally, disposed to abbreviate further animal experimentation and concentrate our observation, as far as possible, on a larger number of human beings. Mr. Midgley is in accord with this view. If your experiments coordinate with those of Prof. Flinn up to date, it may prove best to take this action.

This is why I think we should have another conference in Pittsburgh at an early date, but I will abide by your advice in the matter.

Yours very sincerely,

W. C. Cihuan Thompson

WGT/ES



New York Times
4/23/25

New York Times
4/24/25

FORETOLD HIS ATTACK ON LEADED GASOLINE

Dr. Henderson Says Company Didn't Employ Him When He Indicated Adverse Finding.

NEW HAVEN, Conn., April 23.—Dr. Yandell Henderson, Professor of Applied Physiology at Yale, who attacked the use of leaded gasoline as likely to cause vast numbers of the population to contract chronic lead poisoning, replied today to the statement of Thomas Midgley Jr. that he had sought a retaining fee to be engaged as an investigator of leaded ethyl gasoline.

"The statement of Mr. Midgley," he said, "that I sought a retainer from the Ethyl Gas Corporation and desired to make an investigation for them puts the facts exactly backward. They wrote me two or three years ago asking if I would like to make an investigation for them. I replied that I would do so, but that I believed the results of my investigation could scarcely fail to show that the public use of leaded gasoline would involve an intolerable hazard to public health."

"The wording of my letter was closely similar to the remarks on this subject which I included in my address before the Safety Council Tuesday night. Apparently the Ethyl Gas Corporation did not wish an investigation from that standpoint, for I have heard nothing further from them. I have since learned that they had closely similar replies from several other sanitary experts. None of us who took this view was employed."

"The urgent need of today is for the appointment by the Surgeon-General of the Public Health of a commission of sanitary experts to consider and report on the health hazard involved in the general introduction of ethyl gasoline."

ETHYL GAS OFFICIALLY DENIES MONOPOLY

General Manager Midgley Answers Assertions Made by Prof. Henderson of Yale.

TELLS OF RESEARCHES

Declares Scientist Failed to Get Retainer to Make Investigation He Attacked

Thomas Midgley Jr., Vice President and General Manager of the Ethyl Gas Corporation, issued a statement yesterday in reply to Dr. Yandell Henderson, Professor of Applied Physiology at Yale, who asserted in a speech on Saturday night that the use of leaded ethyl gasoline threatened to cause a large number of chronic lead poisoning cases among the general public.

The statement denied the Yale scientist's assertion that the ethyl gas makers aimed at a monopoly of the gasoline and motor business and that "literally billions were involved." Referring to Professor Henderson's criticisms of the Bureau of Mines' investigation, Mr. Midgley admitted that the corporation had supplied part of the funds for that investigation, and added:

"If Dr. Henderson wished the public to draw the conclusion that because a part of the cost of a scientific investigation is defrayed by an industry which is interested in it, the results are to be regarded with suspicion, he may wish to explain why it was that he himself unsuccessfully sought a retainer from the General Motors Corporation to make such an investigation. The General Motors Corporation preferred to entrust such an investigation to an arm of the Government than to a private investigator paid by it."

Explains Why He Answers.

In his general reply to Dr. Henderson, Mr. Midgley Jr. spoke as follows:

"The morning papers carry accounts of the speech of Dr. Yandell Henderson attacking the Ethyl Gasoline Corporation, its product, stockholders, methods of doing business, and morals. The main topic of Dr. Henderson's speech is, or should have been, the consideration of the hazard to public health arising from the use of ethyl gasoline. If the statement had been confined to an expression of Dr. Henderson's opinion on this subject, there would have been no occasion for any statement by the Ethyl Gasoline Corporation, since Dr. Henderson's view on this point have already been widely promulgated by him. The Ethyl Gasoline Corporation desires, however, to make clear the facts concerning the other matters in connection with its business, which were dealt with by Dr. Henderson, particularly the following:

Dr. Henderson states that the purpose of the interests behind the ethyl corporation is to monopolize the production of motor cars and the sale of motor fuel. The facts are as follows: The product of the Ethyl Gasoline Corporation is ethyl fluid, the chemical which when added to gasoline in the percentage of about one-tenth of one percent stops the detonation, or knock, which is experienced to a considerable extent when operating automobile motors under conditions of hard service. The occurrence of this knock is the one important thing which has for a generation past prevented the building of more efficient gasoline engines. The General Motors Corporation recognized this problem some seven or eight years ago and started research in its laboratories at Dayton, Ohio, to determine the cause of this knock and any possible means which might be used to correct it and thereby permit more efficient motors to be built.

Found Cause of Knock

The result of seven years of work along this line was the final discovery that the knock was caused by certain combustion characteristics of gasoline, which, as every one knows, is the only fuel which may be relied upon as a permanent and adequate source of supply for the automobile. It was further discovered that the addition of certain rare, and therefore almost unknown, chemicals to gasoline would prevent this knock.

The results of this research work were freely published, and have already been of immense benefit to the automobile industry in the better understanding of the problems of engine design and the production of more efficient engines and better motor fuels. The sole benefit which the General Motors Corporation received from the expenditure of this work was that it did own patent rights covering particular materials which could be added to gasoline to accomplish the desired result. It has, and can have, no monopoly of the more efficient types of motors which this new fuel will make possible. Indeed, such motors have been in use with special fuels for many years for racing, aeronautical and other purposes. No basic patents on such motors are or can be held by any company.

It may be of interest in this connection to know that engines for the airplane Shenandoah are efficient, high-compression Packard aviation motors, and that the Shenandoah has for some time past been using, and is now using, ethyl gasoline, as being the fuel best suited for this type of high-efficiency motors. The world's speed record for automobiles, recently made by Tommy Milton in California, was obtained by the use of ethyl gasoline in a high-compression motor of another make. Many other examples could be cited to thoroughly prove the advantages obtained by the use of this fuel in such motors. Such motors are built by various motor manufacturers in no way associated with the Ethyl Gasoline Corporation.

Other Investigations Made

The Standard Oil Company of New Jersey started on the same line of research work referred to as having been initiated by the General Motors Corporation some two years later, and followed this line of research independently, but in close cooperation with the General Motors Corporation until the Summer of 1924. At that time it was conceived to be not only to the best interests of these companies, but to the interest of the more rapid progress of this economic improvement to merge these two lines of effort through the organization of the Ethyl Gasoline Corporation. The General Motors Corporation had previously entered into contracts with many large oil refiners for the sale of its antiknock product, and at the time of the organization of the Ethyl Gasoline Corporation the Standard Oil Company of New Jersey specifically stated that its connection with the Ethyl Gasoline Corporation would have no effect whatever on the marketing policy of that corporation and that it was from seeking to obtain any monopoly of the sale of ethyl gasoline, the purpose and policy was to freely license the entire petroleum industry. At the present time not only the Standard Oil Company of New Jersey, but a number of companies both large and small and in no way associated with the Standard Oil Company of New Jersey, are selling ethyl gasoline.



OFFICE OF THE SURGEON GENERAL

IN REPLYING
ADDRESS THE SURGEON GENERAL
U. S. PUBLIC HEALTH SERVICE

TREASURY DEPARTMENT

BUREAU OF
THE PUBLIC HEALTH SERVICE

WASHINGTON

RG 70, Gen. Cor.

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May 1, 1925.

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TR DEPARTMENT
BUREAU OF MINES
WASHINGTON, D.C.

~~DIRECTOR~~

By Sayre

The Director,
Bureau of Mines,
Washington, D.C.

Dear Sir:

The possible public health and industrial hazards in the manufacturing of tetra ethyl lead compound and in the distribution and use of tetra ethyl lead gasoline has been under consideration by the Public Health Service for a number of months.

It has been felt, however, that up to recently evidence has been lacking upon which could be based an intelligent discussion of the health hazards which might result from use of this gasoline.

Now that a larger volume of experimental data has become available, it is believed that a conference at the present time would be productive of a better understanding of the whole question.

As the subject is of nation-wide interest, I would appreciate your attendance at a conference to be held by the Public Health Service on May 20th at 10:00 a.m. at the Butler Building, 3 B Street S.E., Washington, D.C.

Respectfully,

Surgeon General.

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DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

WASHINGTON

April 23, 1925.

Memorandum for Dr. Lyon.

Gandell

Dr. Henderson gave a talk in New York before the American Society of Safety Engineers and International Safety Council on Tuesday evening, April 21, to which I had been invited. I found, however, that it was not practicable for me to attend. Copy of the report of his talk, clipped from the NEW YORK TIMES of Wednesday, April 22, is attached.

It will be noted that Dr. Henderson attacked the Bureau of Mines, accusing it of "arriving at unwarranted conclusion in favor of lead gasoline after improper investigation financed by the Ethyl Gas Corporation." He also stated that "the economy which the Government is practicing just now involved the elimination of many extremely valuable investigations and the curtailment of funds for such scientific work as is continued."

The Bureau of Mines cooperated with the Ethyl Gasoline Corporation on this study, that corporation supplying a certain amount of funds for the work. This has been the policy of the Bureau on many studies and is not different from many of those carried out in the past; some of those in which Dr. Henderson was employed by the Bureau were carried out on this basis.

As to the Bureau arriving at an unwarranted opinion, we of course believe in and have the results of our investigation as a basis, while Dr. Henderson, to the best of my knowledge, has made no investigation upon which to base his conclusion.

Dr. Henderson stated that "the Bureau of Mines had investigated the danger of the public of acute lead poisoning only and had failed even to take into account the possibility that the atmosphere might be polluted to such an extent along automobile thoroughfares that those who worked or lived along such streets would gradually absorb lead in sufficient quantities to poison them in the course of months." The first part of the statement is not a fact, and the last part is covered by a limited portion of our study.

The Bureau of Mines has made and is making a study on the following:

1. The effect of exhaust gases from an engine using normal ethyl gasoline, the result of which is given in Monthly Reports of Investigations No. 2661.

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2. The effect of exhaust gases from an engine using gasoline containing five times the commercial amount of tetraethyl lead.

3. The effect of inhaling ethyl gasoline in the following concentrations:

- a. 1 per cent fumes from normal ethyl gasoline for one hour daily.
- b. 0.3 per cent fumes from normal ethyl gasoline for two hours daily.
- c. 0.1 per cent fumes from ethyl gasoline for three hours daily.

The above concentrations were also tried when the gasoline contained $2\frac{1}{2}$, $3\frac{3}{4}$, and 5 times the amount of tetraethyl lead in the ethyl gasoline. The effects of fumes of straight gasoline in the above concentrations were tried for comparative purposes.

d. Application to the skin of various animals of different amounts of normal ethyl gasoline and of gasoline containing 10 times the commercial amount of tetraethyl lead.

The results of these studies will be available in the near future. The Surgeon General of the Public Health Service has considered calling a conference to discuss all the information available on the subject relating to public health. It was believed best not to hold such a conference until investigations being carried out by the Bureau of mines and other organizations were more nearly completed. I presume that the Surgeon General will call such a conference in the near future.



R. R. SAYERS
Chief Surgeon, U.S.B. of M.
Surgeon, U.S.P.H.S.

Inclosure No. 30719.