Lead Industries Association

60 EAST 42ND STREET

NEW YORK 17, N.Y.

JOHN D. BRADLEY, PRESIDENT
K. W. GREEN, VICE PRESIDENT
F. S. MULOCK, VICE PRESIDENT
F. E. WORMSER, VICE PRESIDENT
ROBERT LINDLEY ZIEGFELD, SECRETARY-TREASURER

MANFRED BOWDITCH
DIRECTOR OF HEALTH AND SAFETY

February 8, 1960

Robert A. Kehoe, M.D., Director
Kettering Laboratory of Applied Physiology
University of Cincinnati
College of Medicine
Eden Avenue
Cincinnati 19, Ohio

Dear Bob:

An eight-page reprint of five articles on air pollution in the Washington Post, reproduced and apparently widely distributed by the Public Health Service, has recently come to my attention. Only the first two pages of the reprint are germane to this discussion, and these are copied herewith. You will find underlined on the first page the names of two PHS scientists whose unsupported conjectures relative to "lead exposures.....associated with auto exhaust" are quoted at the conclusion of the passage marked for your attention on page two.

I discussed this with Joe Costello on Friday, finding (1) that he felt much as I do about it, and (2) that, while his organization knew of the publication last June, they had not been aware of the articles in the Washington Post, or of their subsequent reproduction by the PHS.

You will note that these two theorists fall back on the selfsame "any increment" argument in which their Cincinnati brethren found themselves obliged to take refuge in their come-hell-or-high-water determination, in the face of the far more scientific work of Elkins reported on herewith, to lend support to the insupportable opinion of a departed colleague.

This is particularly interesting to me in the present instance because, when you yourself (to my amazement and, in my honest judgment, most mistakenly) used the same reasoning at that ingeniously (and not too straightforwardly) railroaded ad hoc committee meeting, I was tempted to point out that the identical thing could be said of lead tetra-ethyl, and that, to follow through consistently on your pronouncement, we should ban not only TEL, but lead storage batteries, many paints and ceramics

and indeed any and all lead products, however useful, which might conceivably add their .000001 to this frightening and omnipresent hazard.

It's a long lane that has no turning.

Sincerely,

MB:es
enc.

THE ANGELES OF AIR POLLUTION from THE WASHINGTON POST

Series by Morton Mintz of The Washington Post - December 3-7, 1970

The Washington Post Outlook

70 Million Auto Exhausts Spout Health Problem

because the bears are our motor vehicles; and our lives are built around them. But so long as we hold on, we must breathe their exhaust fumes.

The House passed a bill last August directing the Surgeon General to determine the consequences of exhaust fumes "from the standpoint of the public health" and advise within two years what can be done about them. A bill introduced in the Senate would give the Surgeon General broader authority.

Smog killed 60 Belgians in the Meuse Valley in 1930, 18 to 20 residents of Donora, Pa., in 1948 and 4000 Londoners in 1952. Like Pliny the Elder, overcome by "sulphurous fumes" near an erupting Mt. Vesuvius in A. D. 79, the victims were generally elderly and had pre-existing lung or heart disease.

a Public Health Service publication that sufficient concentratio ex- haust fumes may lead to:

- Sickness, more sickness in the frail and the ill.
- An "unusual risk" i smokers and persons expos to fumes with similar ingre
- A compounded hazard persons vulnerable in two or more

Some Effects Delayed

THE SCIENTISTS, Drs. John P. Goldsmith and Lewis Rogers, also warned of serious effec may be discovered only after y of ex- posure. If the effect should be lung cancer, it would p fatal.

In Donora, 5910 persons made ill. Preliminary data indic the 11 years since, this gro higher death and disease than residents who were not af

medical research.

• Preventive and control measures that can be applied in many instances.

Startling Comparisons

HERE ARE some of the major findings:

Cancer is the disease most often mentioned in connection with motor vehicle exhaust fumes. A major reason is the work of Dr. Paul Kotin in medical laboratories of the University of Southern California. He produced cancer in animals by exposing them to certain suspected hydrocarbons found in exhaust fumes and to synthetically produced Los Angeles-type smog.

The experiments do not prove that these suspected carcinogens cause cancer in man. Men are not mice. They are not exposed in the same ways to the same amounts. But, Dr. Prindle says, this kind of experimental evidence is at least as good (and as controversial) as the inconclusive laboratory work linking cigarette smoking to lung cancer.

The statistical evidence against exhaust fumes is another story. It proves no cause-and-effect relationship. It is admittedly thin, both objectively and in comparison with the thick mass of data that ties together smoking and lung cancer. It may always be that way, for the intake of air pollutants varies infinitely; the intake of tobacco smoke is determined with relative ease.

Statistical evidence raises deeply troublesome questions nonetheless. Consider the finding of chemical engineer Eugene P. Houdry that between 1914 and 1950, lung cancer among white American men increased at about the same rate as gasoline consumption. He cites these coincidental happenings in the World War II years of 1940-5:

• Cigarette smoking increased at a record rate.

• Gasoline consumption declined at almost the same rate (because of rationing).

• Lung cancer increased—but at the lowest rate in four decades (6.5 per cent, compared with a range of 9.4 to lung cancer in the Nation (and air pollution 20 to 30 per cent) but has testified that the city-rural difference "appears to be unrelated to smoking habits."

Air pollutants are swallowed as well as inhaled. In cities, the death rate is higher also for cancer of the stomach, bladder, larynx and esophagus.

Many Other Sources

AUTO EXHAUST fumes contain about 200 different hydrocarbons. The suspected carcinogens among them are so tiny that they are measured in terms of the micromilligram—a thousandth part of a millionth part of a gram. This minuteness is not a reliable guide to the size of the potential danger.

These particles add to a cumulative total of suspected carcinogens that each individual absorbs each day from other sources. Among the sources are, to name but a few, coal, oil and gas-burning equipment, tobacco smoke, incinerators, leaf burning, petroleum refineries, steel mills and asphalt plants.

The amounts taken into the body vary almost beyond calculation. How much do you smoke? How much time do you spend in traffic jams? Do you live in an area where the topography and meteorology combine to put a lid on exhaust fumes, holding them down in the air you breathe? And how often does this happen?

Don't look for easy answers. You might expect, for example, that the lung cancer rate in Los Angeles would be higher than that in, say, Detroit. It isn't. But Dr. Prindle points out that 63 per cent of Los Angeles' residents were not born there. For most or part of their lives they have breathed other air.

The problem of cumulative totals applies to other poisons, including lead and carbon monoxide. Both are produced when tobacco or leaded gasoline are burned.

Lead and lead compounds can cause brain, liver and kidney damage. The small and persistent exposure associated with auto exhaust may be sufficient to render an o[illegible] tolerable lead burden, a toxi[illegible] in a few persons."

Enemy of Oxyge[illegible]

CARBON MONOX[illegible] is odorless, tasteless, colorle[illegible] ous. If there is one part [illegible] one million parts of the air you breathe, the blood's hemoglobin has 0.16 per cent less ability to carry oxygen from the lungs.

This is a summary of findings by Drs. Prindle, Goldsmith and Rogers:

• If you live in a city, between 0.62 and 1.24 per cent of your hemoglobin will be unable to carry oxygen. (But the average range in Los Angeles County last year was 0.96 to 1.80 per cent. It is rising there at the rate of 0.16 per cent a year.)

• If you live in a city and you smoke, between 3.1 and 7.8 per cent of your hemoglobin will be ineffective.

• The amount of hemoglobin that is, in effect, withdrawn from circulation is increased by traffic. Samples were taken of the air alongside five Los Angeles freeways on smoggy mornings in September, 1956. The maximum carbon monoxide concentrations could make between 6.67 and 14.9 per cent of a person's hemoglobin ineffective; the mean concentrations, between 2.46 and 5.76 per cent.

• Inside a car, the concentrations of carbon monoxide run even higher, even if no one is smoking and the exhaust system doesn't leak. (The same is true for suspected carcinogens and other poisons.)

Periodic on-the-job exposures of up to 100 parts per million are not considered dangerous in healthy workers. This is enough carbon monoxide to make 16 per cent of the circulating hemoglobin unable to carry oxygen.

In persons with heart and circulatory diseases, Drs. Goldsmith and Rogers warned, "slight impairment of the oxygen transport function of the blood may have serious consequences." And