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# Ample Evidence for Taking The Lead Out of Gasoline

THE SHAMEFUL and preventable tragedy of lead poisoning of young children living in dilapidated housing has been well publicized in recent years. The immediate cause is crumbling paint and putty from another era, lead having been banned from these products for interior use. Lead is still used in some poster paints, however, and I was shocked to hear a paint salesman shrug off the warning label on a product that he claimed was widely distributed in schools.

We are also exposed very widely to lead emitted from automobile exhausts at the rate of 400 million pounds per year in the United States as a by-product of the use of "lead alkyls" to improve the octane rating of gasoline. We have little evidence of population damage from this source of lead, though there is little doubt that it is a principal source of the accumulation of lead in the bloodstream and bones of city dwellers. It is mathematically certain that this general elevation of environmental lead increases the chance that a child who eats lead paint will be pushed over the brink of acute lead poisoning.

IN ANIMAL studies, the feeding of lead salts has been confirmed to cause kidney tumors, one of the many forms of cancer which have been increasing in civilized countries. Workers in lead-handling industries have not exhibited an unusual rate of kidney cancer, however, so this particular suspicion is still inconclusive.

Tetraethyl lead is well recognized as an acute poison—for example, a case was recently reported of brain injury and psychosis from sniffing leaded gasoline. It also induced lymphatic leukemia in mice, according to experiments by Drs. S. S. Epstein and N. Mantel of the Children's Cancer Research Foundation of Boston and the National Cancer Institute.

Lead salts, again at high doses, have produced chromosome breaks and congenital malformations in ex-

perimental animals. This effect was exaggerated by the simultaneous administration of cadmium, another air-pollutant metal.

We cannot reliably translate these experimental results into measures of damage to man at the levels we experience from day to day. To say the least, they can be no basis for assurance or complacency. The basic thrust of this research is not as new as the revolution in public attitudes and social policy: that a helpless population should not be made to bear the involuntary risk of our uncertainties.

A new wrinkle has been summarized in testimony before an air pollution subcommittee of the California legislature. Donald A. Jensen, representing the Automobile Manufacturers Association, pointed out that lead additives complicate the general problem of smog control quite apart from their own potential health hazard.

He quoted studies by Ford Motor Co. engineers that "exhaust hydrocarbon emission increased with mileage considerably more on gasoline with lead compared to unleaded gasoline." Similar but smaller effects were observed with clean engines as well.

THE PRESENCE of lead also frustrates the development of other approaches to controlling emissions from exhausts—by "poisoning" catalysts and clogging and

eroding afterburners and exhaust recirculators. What more must we know before concluding that the community could do very well without the use of lead on gasoline?

Taking it out may cost something—perhaps to a level of a tenth of the taxes now collected in gasoline—for a while, until the undoubted ingenuity of the petrochemical industry has produced more economical alternatives. In these circumstances, it is an unfair burden on the conscience and reputation of individual oil companies to wait for any voluntary action on their part that would expose them to competition within the industry.

We might even find it profitable in the long run to provide tax incentives to the makers of lead additives to divert their production, following the same logic as in offering incentives to other polluters of the environment.

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