



Chapter 4 on Leaded Gasoline, in “Industrial-Strength Denial” (extracts)

Extracts from Chapter 4: "How Wrong One Can Be": Bias, Tribalism, and Leaded Gasoline, in *Industrial-Strength Denial: Eight Stories of Corporations Defending the Indefensible, from the Slave Trade to Climate Change*

Author: Barbara Freese, published by University of California Press, May 2020

Chapter 4: "How Wrong One Can Be": Bias, Tribalism, and Leaded Gasoline [page 97]

“The whole proceeding against an industry that has made invaluable contributions to the American economy for more than fifty years is the worst example of fanaticism since the New England witch hunts in the Seventeenth Century.”

-Lawrence Blanchard, vice president of Ethyl Corporation, on rules phasing lead out of gasoline, 1976

In 1921, Thomas Midgley was a young engineer at General Motors.

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On December 9 [1921], Midgely and his colleagues tried yet another [gasoline anti-knock] additive... it was cheap and patentable.... The magic ingredient was a substance called tetraethyl lead (TEL), and it was soon clear that this breakthrough – the invention of “leaded” gasoline – was worth a staggering amount of money.

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An inauspicious start: “Insanity Gas” and a Delusional corporate response [page 100]

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In February 1923, leaded gas went on sale in Ohio.

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And then the deaths began. In the summer of 1924, two workers under Midgley’s close direction at a GM plant in Dayton, Ohio, died from TEL Poisoning, and dozens were hospitalized.

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But in October 1924, men at a third facility – a Standard Oil refinery in Bayway, New Jersey – started falling ill. Because the plant was located just across the river from New York



City, several of the city's papers got wind of the story and covered it with alarming headlines like "Odd Gas Kills One, Makes Four Insane," "Another Man Dies From Insanity Gas," and "Gas Madness Stalks Plant; 2 Die, 3 Crazy."

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In one week, five workers died and another thirty-six were hospitalized. Their doctor soon reported they were "doing nicely,"

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One of the first responses to the disaster made on behalf of Standard Oil came from a physician who had been consulting for the company. Not realizing that the horse had already left the barn, he told a newspaper reporter that "nothing ought to be said about this matter in the public interest."

Small-town papers have a long history of agreeing to ignore spectacularly violent workplace accidents upon the request of locally dominant employers.

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A subsequent response issued the first day of the crisis came from the chief chemist at the plant, Dr Matthew D. Mann. When asked by journalists to comment, he left the room for several minutes and returned with a written statement saying that "these men probably went insane because they worked too hard." While major corporations were not as good at presenting plausible denials in the 1920s as they are today, their denials were hardly ever this preposterous. However, Dr. Mann was himself later named among the victims of TEL poisoning, and William Kovarik, a communication historian who has researched the 1920s controversy in depth, concluded that Mann "had probably made the statement while in a delirious state of mind." If so, this would be a rare example of a corporate denial caused by the very product whose dangers were being denied.

What was not rare was for employers to blame workers for getting poisoned. When the story did not go away, that is what Ethyl and Standard Oil tried next (though at least they admitted that the symptoms were caused by workplace exposure, unlike US Radium which a few months later would blame its workers' poisoning symptoms on their inherent Weaknesses). Midgley raced to New York for a press conference at the Standard Oil headquarters on Broadway, where he said that despite warnings, the Bayway workers "had failed to appreciate the dangers of constant absorption of the fluid by their hands and arms." Other company officials at the press conference insisted that they had constantly admonished workers to wear rubber gloves and gas masks, and said the workers had plenty of reason to know they were engaged in "a man's undertaking." A few months later the company would employ a stricter worker-protection protocol, which Midgley described like this: "The minute a man shows signs of exhilaration he is laid off. If he spills the stuff on himself he is fired."



Because he doesn't want to lose his job, he doesn't spill it."

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Viewing Risk through a tribal lens: shaping the science [page 105]

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...those backing leaded gas played their cards close to their chest, including initially suppressing the news of the deaths at the Dayton and Deepwater facilities - news that might have prevented the poisonings at Bayway if the health authorities and workers had known it.

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Exalting the in-group: and industry with the "interests of the public at heart" selling a "gift of god" [page 106]

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One of the attendees at the conference was Yale physiology professor Yandell Henderson, a nationally recognized expert on the effects of gases on the body. Henderson had become a widely quoted thorn in industry's side since the Bayway poisonings. He had prophetically warned in an April 1925 speech of the likelihood that "conditions will grow worse so gradually and the development of lead poisoning will come on so insidiously (for this is the nature of the disease) that leaded gasoline will be in nearly universal use and large numbers of cars will have been sold that can run only on that fuel before the public and the Government awaken to the situation."

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[Page 108 to 109]

Frank Howard, of Standard Oil, but speaking on behalf of its corporate partners too, went further. He stated that "our continued development of motor fuels is essential in our civilization," and by letting a gallon of gas go further, TEL was a "gift of God." A scientist who consulted for Ethyl expressed a similar view in a letter to a federal official; while acknowledging the health risks of leaded gasoline, he was "afraid human progress cannot go on under such restrictions and that where things can be handled safely by proper supervision and regulation they must be allowed to proceed if we are to survive among the nations."

Reframing a harmful action as serving a greater good is another psychological mechanism Albert Bandura identified that enables people to more easily violate their own moral codes. The industry's defenders may well have convinced themselves they were serving the larger good when they made their statements, but there is evidence that the larger good was not the dominant motive.

For example, the first nation with which this gift of God would be shared was Hitler's Germany. In 1936, a TEL plant would be built in Germany and jointly owned by an Ethyl affiliate and IG Farben, a powerful German chemical trust that was crucial to the rising Nazi war machine. The deal would be negotiated by the same Frank Howard, and as a congressional investigation would later reveal, the TEL technology was shared despite



warnings that Germany was secretly rearming and TEL would help it. Indeed, an IG Farben official wrote during the war that “without lead-tetraethyl the present method of warfare would be unthinkable,” and the Nazis’ ability to produce TEL was entirely because “the Americans had presented us with the production plants, complete with experimental knowledge.”

Moreover, the indispensability of lead as an antiknock compound had been challenged even in the 1920s. Gasoline could have been blended with ethanol (grain alcohol), as Midgley and others at GM knew because they had successfully experimented with it. But ethanol could be made by “any idiot with a still,” in the words of journalist and automotive historian Jamie Lincoln Kitman. Ethanol could not be patented and did not offer a revenue stream the way TEL did. In his award-winning article in 2000 about the history of leaded gas for *The Nation*, Kitman would write that the benefits of leaded gasoline “were wildly and knowingly overstated in the beginning, and continue to be.”

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Attacking the out-group critic: a naïve, ignorant, brash, passionate, dogmatic, absurd zealot [page 110]

Robert Kehoe - the young physician who in 1925 assured critics that the industry would stop selling TEL if the facts showed an actual hazard - would utterly dominate the search for such a hazard for the next forty years and never spot one. In the meantime, his career would become a symbol of the intimate ties between business and academia, as he simultaneously worked for the University of Cincinnati as head of its industry funded Kettering Laboratory and as medical director of the Ethyl Corporation. Industry not only built his lab and financed most of his research, but it paid his salary (except for the one dollar per year he received from the University of Cincinnati).

While Kehoe’s prominence extended to the field of occupational medicine generally, about lead he was the long-unquestioned authority. To an astonishing degree, virtually all research into lead’s effect on the human body between the 1920s and 1960s was conducted at the Kettering Laboratory under Kehoe’s direction. After he sent colleagues a compilation of his lectures on the subject in 1960, one colleague wrote back, “You are God in the field,” and another wrote, “The last word has been said on lead.”

Kehoe’s data largely came from studying workers, and he helped develop protocols for greatly reducing worker exposures to TEL, surely saving lives by reducing acute occupational poisonings. He also conducted experiments where he had young men eat lead salts and breathe the exhaust of engines burning leaded gasoline, and then measured how much lead was excreted in their waste and how much was left in their blood. He championed two particularly important conclusions drawn from this work. First, he concluded that relatively high levels of lead were naturally present in both the environment and people’s bodies. Second, he argued that as long as blood lead levels stayed below the threshold associated with clinical symptoms of classical lead poisoning, lead posed no harm. The threshold Kehoe



identified was 80 micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dL}$), because he had never seen symptoms of lead poisoning below that level. For decades, these basic principles limited the scope of the discussion about lead poisoning, to the extent there was any discussion.

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An Industry under siege: “The worst example of fanaticism since the witch hunts” [page 117]

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The year 1970 was a particularly rough one for the Ethyl Corporation. Just a few days into the new decade, the president of GM announced that to cut smog-creating emissions, GM was turning to catalytic converters. Since catalytic converters were ruined by lead, new cars would have to burn unleaded gasoline. Both GM and Standard Oil of New Jersey, who had been there at the birth of Ethyl, had sold their shares in the early 1960s; one Ethyl executive compared GM’s announcement to being disowned by your father.

The Ethyl Corporation reacted to the announcement with a flurry of denial. It argued the plan would backfire: unleaded gasoline would actually increase smog and had more cancer-producing agents. It argued impossibility, with one official opining that “lead is going to be in gasoline until they stop using gas in internal combustion engines” (an ironic expression of technological pessimism from a company launched by Charles Kettering, the prophet of progress).

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Almost all the industries profiled in this book complain about being victimized by unfair processes and irrational critics. This seems to be a highly effective way for them, or probably members of any tribe facing criticism, to minimize any feelings of remorse about the harms their tribe has caused. Focusing instead on the wrongs they perceive to have been done to them (and those in the bunker with them) lets an energizing anger obliterate any emerging guilt that might otherwise threaten to demoralize them.

Lead Burden: The gift that keeps on giving [page 124]

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In 1940, at the age of 51, Midgley developed polio. He devised a rope and pulley system to lift himself from bed, and one morning in 1944 his wife found him strangled to death in the ropes. The newspapers were told it was a freak accident, but cemetery records called it suicide.



Volcano Art Prize (VAP) 2020

Artist: Elizabeth O'Brien

Title: The world is cursed until
TEL is banned,

Lead-Safety Message: When
Tetra Ethyl Lead (TEL) is
banned in Aviation Fuel as well
as Motor Fuel, Earthlings will
have a fighting chance of
fulfilling our potential.

Description of Work: Text
created in Powerpoint, on Photo
of Roman curse tablet (made of
lead) © Marie-Lan Nguyen /
Wikimedia Commons, from



https://upload.wikimedia.org/wikipedia/commons/a/a0/Curse_tablet_BM_1934.11-5.1.jpg

URL: <https://volcanoartprize.com/portfolio-item/the-world-is-cursed-until-tel-is-banned/>
