

# PBB: Case Study of an Industrial Plague

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During the first week of April 1976, Gerald Woltjer, an Ottawa County, Michigan, dairy farmer, shot down his 235-head dairy herd in order to draw attention to the nightmare of PBB--poisoning of Michigan livestock, poultry, and dairy products.

Shortly afterward, the story hit the national news media and within weeks the spectre of a new Minamata-style plague loomed over the heads of Michigan residents. (1) Later in the month, the Michigan House of Representatives approved legislation that will eventually ban the sale of meat from PBB-contained herds for sixty days. A bill is also pending which will result in the liquidation of all tainted animals--virtually every farm animal in the state.

Supposedly, despite the massive economic disruption involved, we can all breathe easily now that this sticky problem is being "resolved." But like nature itself, the PBB plague is not so quickly or easily overcome.

## A Case of Mistaken Identity

The horrifying, almost science-fictionesque PBB story goes all the way back to 1973. Recent events are only first rumblings of a serious danger to health, caused by an "error," an oversight on the part of the Michigan Chemical Corporation in St. Louis, Michigan, a subsidiary of the Chicago-based Northwest Industries. This company was manufacturing the PBB (polybrominated biphenyl), a stable, heavy compound used in the manufacture of heat-resistant thermoplastics, under the name of "Firemaster."

Studies done by DuPont in 1972 had already demonstrated that PBB "caused liver enlargement in rats, that it concentrated and remained in body fat and would probably be biomagnified." (2) Michigan Chemical, however, did not share the concerns of the DuPont research scientists, and was blithely producing about three million pounds a year.

Unfortunately, a paper shortage in 1973 led to cost-cutting on Michigan Chemical's part, which started putting Firemaster in brown bags. At some point during the summer of that year, about a ton of Firemaster was mistakenly shipped off to the Farm Bureau Services in Battle Creek and to assorted Farm Bureau feed elevators around the state, and mixed into dairy feed. It was a simple, human mistake, possibly by a fork-lift driver, caused by false capitalist efficiency through cost-cutting and resultant negligence--integral elements of "free enterprise" and competition.

Thus far the state has had to destroy more than 28,000 cattle, 1.5 million chickens, 3,700 pigs, 4.5 million eggs and millions of dollars worth of milk and other farm products. A whole layer of independent middle class farmers has been disillusioned and ruined, and claims of over twenty-six million dollars have been paid by insurance companies for Michigan Chemical and Farm Bureau Services. Millions more remain to be settled and paid. Michigan farming has been seriously disrupted, and the impact continues to deepen.

By September 1973 a few dairy herds were already affected by the PBB poisoning. Farmers and veterinarians alike were dumbfounded, unable to discern the cause of the drop in milk production and the sickness among the animals.

"We suspected everything.:" said Frederic Halbert, a farmer whose persistent efforts led to the discovery of PBB as the causative agent. "It was the time of Watergate, and we even talked about the possibility of sabotage."

Meanwhile, the Farm Bureau Services claimed the problem in Halbert's herd and others to be a "vitamin deficiency," which would have relieved that corporation--long thought to be a "friend of the farmer"--of responsibility. After haggling with various institutions, including the Michigan Department of Agriculture, the National Animal Disease Center, and the U.S. Department of Agriculture, and following the research of several scientists, and spending thousands of dollars, Halbert's efforts paid off and the cause was discovered to be PBB. This was in April 1974.

In May, the Dairy Division of the Michigan Department of Agriculture went on a full-scale check of milk samples from all over the state: PBB turned out to be scattered all over Michigan. Thus began a series of farm quarantines, the destruction of farmers' livelihoods, and the long, inconclusive studies into the nature of PBB which are bound to continue far into the future.

## Safety Levels and Scientific Method

The question of safety, or action levels, is problematical. Action levels are designated amounts of PBB or other chemical substances in a product, which, if exceeded, render the meat legally dangerous and unfit for sale. It is becoming evident that attempts to measure levels of PBB present are wildly inaccurate, and that measuring the levels of toxicity to human beings is nothing but guesswork.

In July 1974 the state set the action level for cattle at one part per million (ppm) in fat tissue, and began destroying farm animals with higher PBB levels. By November the acceptable level was revised downward to 0.3 ppm. But the level of contamination seems to be unrelated to the effects of poisoning.

According to a *New Republic* article, "Many of the dead and dying farm animals," which the article earlier describes as exhibiting "black sores, swollen joints, weakened resistance and hair loss," among other symptoms, "had extremely high concentrations of PBB in their systems, reaching in some cases as much as 500 parts per million. Other animals, however, are dying with less than 0.3 parts per million of PBB in their systems and, in some cases, as little as 0.06 ppm." (3)

In some instances, animals with greater amounts of poisoning than the specified action levels seemed to be unaffected by the PBB and were deemed "fit for human consumption" by state agencies.

"The miserable truth about the action levels," writes Curtis K. Stadtfeld in his article, "is that they are purely arbitrary. They are supported only by sophisticated guessing. No one can say with any certainty that any given amount of PBB ingested into the human system will produce specific health problems. PBB may be completely harmless. On the other hand, it may be very slow-working and deadly." (4)

Stadtfeld himself falls into error with his statement as to the possible harmlessness of PBB to humans. The DuPont experiments with rats and the visible results upon the dairy herds are more than enough scientific evidence. The question is how much of the chemical a human being can sustain on the average without damage to health.

He goes on to explain just how the safety levels were established. The first method was to assume a mathematical and chemical relationship between PBB and another totally different substance, polychlorinated biphenyl (PCB). Certain tests indicate that PBB is five times as toxic to rats as PCB, which has an established safety level of 2.5 ppm in milk fat. The Food and Drug Administration decided to allow one tenth of this amount in the case of PBB, which as Stadtfeld says, is "nothing more than a guess."

The second method is simple enough: a minimum level of 0.3 ppm can be successfully tested by a gas chromatograph machine. Thus the sophistication of the equipment of one possible method of testing, rather than any knowledge of toxicity, limits the efficacy of such standards.

It should be stressed that test procedures so far (including gas chromatography) for establishing PBB levels have a high degree of uncertainty in their results. This has even led to accusations by the farmers that the government is lying on its test results (which is very likely). The tests done on the effects of PBB, such as recent work by Dr. L. Willett of the Ohio Agricultural Research and Development Center, are even more meaningless. (5)

Tests on PBB levels and toxicity are subject to wide interpretation by the tester depending on the method and equipment used. There is no point in setting levels at all if measuring methods are inaccurate, inconsistent, and unrepeatable--unless it can be shown through extensive research that PBB is non toxic to human beings at certain levels.

But like predicting such levels in atomic radioactive poisoning, and other dangerous pollutants, figures are meaningless. Because scientific conclusion is based on probabilities, the only valid test would of necessity be the result of a mass PBB-plague which would provide scientists with a large enough control set to make conclusive statements--something which we may yet see.

## Cattlegate

It has been the debate over safety levels which has suggested collusion between state agencies and corporations against the protesting farmers who have demanded that the levels be reduced to zero. Such complicity has led the farmers to claim that an actual cover-up has taken place. They even printed a bumper sticker which reads: "CATTLEGATE: Worse than WATERGATE."

Dr. Donald Isleib, chief deputy director of the Michigan Department of Agriculture has said that no identifiable pattern of illness has resulted from PBB ingestion, including among farmers and their families who consume their own meat and dairy products raised on Firemaster. He has concluded that the state levels (0.3 ppm) are safe. (6)

Michigan Department of Public Health director Dr. Maurice S. Reizen seconded that optimistic appraisal through an official department report in May 1975 which stated, "PBB, thus far, has not been shown to be the cause of any identifiable human ailment." The Health department also felt that state levels were adequate. (7)

Others disagree. Among them is Dr. Walter Meester, director of medical research at Blodgett Memorial Hospital in Grand Rapids. He answers that though "there is no specific symptomatology or sign" of disease from humans ingesting PBB, a horde of nonspecific symptoms have cropped up among the farmers and residents of the producing localities. These symptoms include extensive liver and bone marrow damage, abnormal blood-counts, and signs of arthritis. PBB victims will tend to report headaches, rashes, numbness, and loss of appetite--all nonspecific, possibly caused by other substances, and even psychosomatic.

This dispute, with corporate and government doctors scoffing at the allegations of industrial plague victims, brings to mind another horrible industrial plague which surfaced earlier this year: the Kepone pesticide poisoning among Life Science Products Company workers and the townspeople of Hopewell, Virginia, where the firm is located. Kepone, a powerful insecticide which attacks the nervous system of ants and other insects, has left scores of workers and their families, not to mention more who may develop future problems, with extensive liver damage, sterility, and skyrocketing cancer potentiality. Kepone was also dumped into the James River through the Hopewell sewage system. (8)

When Life Science workers began to develop the shakes from their own nervous system damage, company doctors had claimed that the trembling was psychosomatic! Such talk of hysteria and "over-reacting" to these dangers by "medical authorities" should reveal with complete clarity who the so-called medical authorities (and medicine in general) serve: the capitalist ruling class.

Jerry Burke, of Pinora Township, also disagrees with Michigan State agencies as to the dangers of PBB. Burke, who is forced to walk with a cane and who is obviously embittered about the scandal, reported to a hearing on PBB in Cadillac, Michigan, that his problems started in 1973 upon buying PBB-contaminated calves in Chase. He has since suffered four heart attacks and his son has contracted a heart murmur.

"This administration has done nothing for us," he said. "They have lied to us. We're tired of it." Department of Agriculture officials did not bother to attend the hearing. (9)

Dr. David Salvati, a Big Rapids doctor also has doubts about the Department of Health optimism. He reported that fifty of his patients have developed "serious medical problems" as a result of PBB poisoning. Some of the symptoms Salvati reported were extreme fatigue, swollen joints, and liver damage. (10)

And these are just early reports. No one has any idea what the long range effects will be. Michigan's population has been exposed in varying degrees since 1973. The real impact may not be felt for years.

Like Life Sciences in Virginia, Michigan Chemical continued throughout the scandal to dump PBB into the Pine River, which is part of the Saginaw river system, which flows into Lake Huron's Saginaw Bay. Testing on river water, fish and fowl by the Michigan Department of Natural Resources, showed dangerous PBB levels for at least eight miles down the river. The day before a warning was issued, Michigan Chemical stopped producing PBB. (11) The song is over, but the melody lingers on.

## **Farmers Fight the State**

Throughout the deepening "cattlegate" scandal, the farmers and dairymen went through a political transformation of sorts. Their dealings with state agencies, corporations, mealy-mouthed politicians and generally unresponsive press were somewhat less than uplifting.

Many could have sold off their tainted cattle legally (as many indeed were forced to do). Yet, like Woltjer, a significant number chose to slaughter them thus bringing about their own financial ruin--rather than pass them off to the consumer. Woltjer will be taxed approximately 15,000 dollars by the state for the removal of his herd from his land--cattle he could have sold.

The livelihoods, and thus the lives, of these people have also been shattered by the PBB plague. Even those who have maintained their farms have found their spring seasonal planting disrupted. Some families, after generations on the land, have given up or lost their farms altogether. Many have already developed serious health problems. Others wait apprehensively for the symptoms. No insurance claims can reverse these effects of the PBB plague, as the farm people are painfully aware. As Louis Trombley, a Hersey, Michigan farmer, said in a telephone interview with this paper, "We can replace our herds, but not our children. Soon, maybe we'll die like our cattle."

Hopefully they have begun to learn that they can in no way trust the bourgeois state to protect them or to solve health problems caused by capitalist looting. In a society based upon the accumulation of capital through profits and competition, we can only expect more catastrophes like PBB, Kepone, and other even more horrifying plagues. Only in a society based upon satisfying human need, and the production of use value rather than commodity value will such problems be taken seriously and resolved. The interests of the farmers are not served in the long run by going to politicians in Lansing but in creating an alliance with the workers of the cities for communist revolution.

Even if PBB is cleared up, the underlying problem remains. Michigan Chemical reflects the chaotic manner in which capitalist society operates. What will be the next industrial plague to surface caused by negligence and competition? Such is the material foundation for an alliance in the cities and rural localities to overthrow the domination of capital.

## **What Next**

The continuing story of PBB is a case study in one of a manifold of industrial plagues which we are likely to face over the next decades. Increasing competition among capitalist farmers has led to increasing dependence upon chemicals to capture the market. As Stadtfeld writes, "With the best of safeguards, we are terribly vulnerable to repeated and perhaps more horrible chemical disasters."

Most disasters have been restricted to local areas, but each successive one will undoubtedly come to affect greater and greater geographic areas. The PBB plague is reflective of this trend--a poison which traverses localities and has ended up in the food and animal feed supply of an entire state. No one can afford any longer to ignore the issue.

The increase of toxic chemicals in the environment underlines the plague. In 1971 the Council on Environment Quality reported that there are about two million known chemical compounds, and thousands are discovered every year, of which several hundred go into commercial production.

What is clear is that any synthetic compound used in agriculture (or which somehow ends up there) not originally found in nature is ultimately going to be harmful to human health. Natural evolution has culminated in a human organism which has accommodated itself to various substances in the environment, both beneficial and harmful.

The only exception is radioactivity which is body-altering but which itself has played at times a positive role in human evolution. (12)

But humanity has reached a point in its history where it has introduced great quantities of totally alien synthetic substances never before present in the environment. There are no natural evolutionary body systems that deal with these substances without damage to the human system or death. This is why so many of the new dangerous substances attack the liver, which is the body's natural filter in defending homeostasis, the equilibrium system. (13)

These disasters aren't necessarily caused by industry per se, but by the laws of private ownership of the means of production. Fierce competition makes pollution and lack of ecological foresight a cost-cutting factor. The average capitalist firm, not wanting to invest funds in anti-pollution practices and research, prefers to dump its wastes into rivers and lakes and worry about long-term effects as they occur. When catastrophe strikes, they are even liable to benefit through government subsidies.

Marx and Engels wrote over a hundred years ago about the universal tendency for capitalism to "nestle everywhere"--who would have foreseen that it would even come to nestle in the livers of its victims!

Not only social relations, but ecological interdependency and balance hang on a thread. Rene Dubos points out through the example of the Irish Potato Blight of 1845 how the direction of human society can be fundamentally changed through the interaction of seemingly innocuous natural factors. In that case a parasite and some bad weather changed the shape of Ireland, killed millions and influenced political events in Europe. (14)

In the case of the modern plague, capitalism through the introduction of a myriad of "innocuous" chemical compounds for our "comfort" (We do it all for you, they sing) --may end human life on earth. The precariousness of the situation renders the need for revolutionary social change all the more imperative and immediate.

## **Back to Nature?**

There is a danger that the reaction to the industrial plagues will lead to a total rejection of technology. Murray Bookchin, in his essay, "Towards a Liberatory Technology," (15) points out that such pessimism is as simplistic as the technocratic optimism which prevailed in the earlier decades. "An organic mode of life," he writes, "deprived of its technological environment would be as nonfunctional as a man deprived of his skeleton."

Indeed, there is no escape, no "going back to nature." The human race is locked into technology and cannot save itself without the help of scientific research and innovation (just as the revolutionary critique of capitalism is scientific). It is only science wedded to revolutionary social practice which can enable us to clean up the environment, dispose of dangerous wastes, and to find better methods for insuring natural interdependence and the maintenance of essential life-support systems.

The modern plague underlines this necessity for scientific and social revolution. Medical science must be fused with revolutionary social reconstruction and ecology. Science will facilitate the discovery of each new plague and each possible cure. After all, even if society were to clean up the environment tomorrow, we would nevertheless face the plagues which are already upon us, the full impact of which has not yet hit.

On the other hand, we must begin to critique the outmoded industry of capitalism and to distinguish it from revolutionary technology of the future society. "Revolutionaries" who think that communism is a redistribution of goods or "workers control" of massive polluting industrial behemoths and "proletarian" dependence upon dangerous chemicals, have no idea what the revolutionary project must be today.

Revolutionizing the means of production means a complete overthrow of the way we produce goods in our society, a total re-evaluation of our needs. It means the scrapping of wasteful industry for revolutionary, ecological methods of production, for the refinement of technique, for the union of utility and beauty. It means an utterly new method of production, a new architecture, a new sense of materials. It means especially the discarding of the positivist hoax of the "domination of nature by man" and the emergence of a more scientific approach of balance and interdependence.

The alternatives are clear: communist revolution or physical extinction. And time is running out. To return to the PBB plague: Louis Trombley, one of the protesting farmers, said: "The farmers can't hold out much longer. If the state doesn't do something soon, the poisoned cattle will end up on the market."

For all practical purposes, it is on the market. The capitalist state won't save us from the plagues. It is up to working people to overthrow capitalist social relations and organization root and branch in both urban and rural areas, and to transform human society. The struggle against capital does not end within the context of the modern industrial plagues. It begins there. And it is up to us to carry it to its conclusions.

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## Notes

1. Minamata is a fishing town in Japan. It has suffered one of the worst eco-disasters in history, mercury poisoning, which has affected at least thirty-eight percent of its inhabitants. Recently, it was reported that five percent of Canadians suffer from Minamata disease.

2. "Cheap Chemicals and Dumb Luck," by Curtis K. Stadtfeld, *Audubon*, Jan. 1976.

3. "Michigan's New Poison," *The New Republic*, April 26, 1975.

4. Op. cit., Stadtfeld.

5. Willett has claimed, after a maximum of sixty days testing (!), that state PBB levels are safe. He was recently removed from a state panel on PBB by Governor Milliken when it was revealed that he had received grant monies from both Michigan Chemical and Farm Bureau Services.

6. Op. cit., *The New Republic*.

7. Op. cit., Stadtfeld.

8. Cf. "Tragedy in Hopewell," *Time*, February 2, 1976.

9. *Osceola County Herald* (Reed City, Michigan), March 11, 1976.

10. *Detroit News*, April 1, 1976.

11. Op. cit., Stadtfeld.

12. Cf. George Simpson, *The Meaning Of Evolution*, Yale University Press, 1952.

13. Hence the incredible rate of liver cancer among the Vietnamese, due to runoff into their rivers of American chemical defoliants--an unpublicized war crime which is still claiming victims.

14. Rene Dubos, *Mirage Of Health*, Harper & Row, 1971.

15. Murray Bookchin, "Towards a Liberatory Technology," in *Post-Scarcity Anarchism*, Ramparts Press, 1971.



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