As we saw last week (RHWN #213), 88% of American children younger than six have sufficient lead in their blood to retard their mental, physical and emotional development. What can we learn by examining the details of this remarkable situation? At least these things:

1) Pollution is likely to harm children and fetuses more profoundly than it harms adults. Therefore, standards should be set to protect children and fetuses not, as is the case today, to protect adults.

2) In the U.S., serious pollution has a strong racial and class aspect: as we shall see, the most seriously poisoned children are very likely to live in families that are poor and non-white.

3) The federal government has recognized for more than 20 years that such children are at risk of mental and physical retardation, yet has not provided protection; it seems to be true that it is the unwritten policy of our federal government to poison the children of poor, non-white families.

4) Pollution is continually being found to be more dangerous and more damaging than previously thought. Officials start by assuming that there is little or no problem; as evidence of damage accumulates, officials grudgingly change their views and, even more slowly, allowable exposure limits are then tightened--a process that can span decades after the evidence is collected. This approach to public health requires substantial numbers of humans to be damaged before health authorities can act. We need a new approach--one that sets out to protect humans before damage occurs.

The easiest and cheapest solutions to lead contamination have already been tried, to little avail. Now government, industry and the public must come to grips with the need for more profound solutions, solutions which will very likely conflict with some traditional American habits and beliefs.

1) Lead is a soft, bluish-grey metal widely used by industry; by its nature, it is toxic to humans and other forms of life. In young or unborn children, at very low levels, lead reduces height, weight, circumference of chest and head; damages hearing; reduces the body's ability to manufacture an essential component of red blood cells (called hemoglobin); causes hyperactivity; interferes with an important blood enzyme (called pyrimidine-5-nucleotidase); interferes with the body's use of vitamin D.

Children are particularly susceptible to lead's toxic effects because they absorb lead from their food more readily than adults do; children absorb 50% of lead in their food, whereas adults absorb only 8% to 15%. Lead crosses the placental barrier, passing from a pregnant woman's blood to the blood of the fetus; red blood cells of fetuses attract and hold lead more readily than do red cells of adults. Children do not get rid of blood lead as readily as adults do; the half-life (time for the body to excrete half of some amount) of lead in blood of adults is 36 days; in children it is 10 months.

A child's normal rate of metabolism (energy use), and of breathing, are higher than an adult's, which enhances lead uptake from air, food, water. Because children are growing, they need good nutrition more than adults do; and because children are not careful about their diets, they are most likely to have nutritional deficiencies, which enhance the toxicity of lead.

2) The lead problem affects children of every socio-economic background, but the poor and the non-white suffer most. According to the best information available today, the poisoning of children begins when they accumulate 10 micrograms per deciliter lead in their blood [micrograms of lead per 10th of a liter of blood], and in some cases even less; unfortunately, the federal government has not published data on the racial and economic background of such children. We do have data, however, for children with 15 or more micrograms per deciliter (as of 1984). Among families income less than $6000 per year, 27.4% of white children have more than 15 micrograms per deciliter lead, but among African-American children 61.6% from such families have 15 micrograms per deciliter lead in their blood. As income rises, the percentage of poisoned children drops, but the disparity between whites and African-Americans continues. With family income between $6,000 and $15,000 per year, 15.8% of whites have elevated lead, but 36.9% of African-Americans have such levels. When income exceeds $15,000, 7.5% of white children have 15 micrograms per deciliter or more; among African-Americans 31.7% have such blood-lead levels. Overall, 11.25% of white children have 15 micrograms per deciliter or more; among African-Americans, the overall total is 44.5%. (Data from the study we call ATSDR 1, pg. 1-12, cited fully last week in RHWN #213.)

These data actually underestimate the severity of the racial and poverty aspects of the lead problem because they do not include Hispanic children and they do not include rural children. Authors of the ATSDR 1 study (pg. 1-11) estimate that the total number of American children with blood lead levels of 15 micrograms per deciliter or higher is between 3 and 4 million.

3) In 1970 the President's Council on Environmental Quality (CEQ) wrote in its annual report (pg. 200): "Estimates of the number of children in the United States with dangerous blood lead levels range as high as 400,000." Obviously this estimate was low by a wide margin, but it showed that the Surgeon General and other health authorities had their eyes open in 1970. The U.S. Congress officially recognized in 1971 that lead was a particular hazard to children--especially non-white and poor children--when it passed the Lead-Based Paint Poisoning Act of 1971. Since then, the government (the President, EPA and Congress) has managed to let the situation deteriorate until today there are some 19 million children in the U.S. under age six with more than 10 micrograms per deciliter lead in their blood. The current (1989) estimate is that there are 400,000 fetuses exposed to excessive lead each year. It is not possible to argue that government didn't know this was a problem needing serious attention. They knew and they let it worsen anyway.

4) So long as we persist in allowing our children to be exposed to poisons until harm can be proven, we will end up just where we are today: discovering too late that our children have been poisoned. We must revise our thinking. We must prevent poisoning before it occurs. This will require us to adopt a philosophy of zero discharge--no one should be exposed to strange chemicals (let alone to known toxins like lead) because we should assume that strange chemicals are not good for humans or other forms of life. Chemicals should be deemed dangerous until proven otherwise. (The nation has already adopted this philosophy toward pharmaceuticals; we shall now apply this view to all chemicals.) The burden of proof should be on those who would expose us to toxins--it should not be up to us to prove we have been damaged before we can successfully argue for an end to toxic exposures.

In the case of lead, which has already massively contaminated the environment, we should consider novel ways to prevent new contamination. Congress has already limited the use of lead in gasoline; a gallon of leaded gasoline can legally contain no more than 0.1 grams of lead; a gallon of "unleaded" gasoline can legally contain only half this amount (0.05 grams). However, if all the gasoline produced in 1987 (110.5 billion gallons) met the standard for "unleaded" gasoline, the environment would still receive 12.2 million pounds of lead from this one source. Under the rule of zero discharge, this would cease entirely, as it should.

The largest single source of lead in the environment is the ash from municipal solid waste incinerators. EPA is waffling on this issue. Their own publications point to incinerators as the major source of lead entering the environment, yet the agency is unwilling to call a halt to this technology, and the agency is unwilling to recommend
that manufacturers be required to phase out lead from all products that cannot be recycled. This represents a grave failure of government to protect the people. Our children's health is at stake. Our national security is at stake.

--Peter Montague

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Descriptor terms: children; race; lead; health effects; statistics; income; ceq; studies; lead-based paint poisoning act; gasoline; ash; msw; incineration;