Cadmium

And now we will consider a relatively new pollutant, cadmium. In the late 1960's the National Air Sampling Network began to detect measurable amounts of cadmium in the ambient air of larger cities. They reported, in fact, that the highest levels (0.42 μg/m3) occurred in the New York-New Jersey metropolitan areas. Since cadmium is toxic to human beings the initial worry was that people might inhale toxic quantities of the heavy metal and also that the metal might be absorbed by vegetation that people would consume and they would therefore be in double jeopardy. It has since been established that edible vegetables do absorb cadmium from atmospheric pollution and it in turn does contribute to the critical cadmium burden that the body can tolerate. How does all this relate to trees? Since trees have a longer life cycle than herbaceous vegetation, we have wondered if trees are "sinks" for atmospheric cadmium. Do they absorb the cadmium from the air, thus purifying the air to a certain extent? And if they do accumulate cadmium in their tissues, are they themselves injured internally by the metal? Unlike the other pollutants we have discussed, cadmium has not caused visible damage to the trees.

Since automobile tires, motor oil, and gasoline are sources of cadmium, we are sampling foliage of several tree species at four roadside sites where the volume of traffic ranges from very few to 60,000 motor vehicles/24 hr. The data are not complete but the inferences are interesting.

Certain species such as pin oak, hickory, and birch are more efficient scavengers of cadmium than ten other species tested. The amount accumulated is proportional to the volume of traffic passing the site. Provided we find no physiological damages to these trees, they may be valuable as air purifiers. Perhaps that is what my local nurseryman had in mind when he put up a sign saying "Grow Your Own Fresh Air—Plant."

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ABSTRACT

Pinnock, Dudley E., Richard J. Brand, James E. Milstead, and Nancy F. Coe. 1975. **Suppression of populations of Aphis gossypii and A. spiraecola by soap sprays.** Journal of Economic Entomology 67(6):

An integrated control program for highway landscape pests is under development in California. Among the pest species in the landscape system are the stem-feeding aphids, *Aphis gossypii* Glover and *A. spiraecola* Patch, which occur in very large numbers on various flowering shrubs, particularly *Pyracantha* varieties. Formerly, the shrubs were treated with organophosphate insecticides to control early outbreaks of these aphids. This treatment, while effective in temporarily suppressing the aphid populations, kills parasitoids and predators of both the aphid species and the redhumped caterpillar, *Schizura concinna* (J.E. Smith), another important pest in the highway landscape. Soap sprays have been a traditional means of aphid suppression for over a century and are considerably less toxic to insects than organophosphate insecticides. Thus it seemed possible that a dilute soap spray could provide the required suppression of the aphids and probably cause less mortality among the parasitoids and predators than would the newer insecticides, thus permitting more effective long-term biological control. A specially formulated soap spray was effective for removal of *Aphis gossypii* and *A. spiraecola* on highway plantings of *Pyracantha* in California. Water alone produced a removal rate of 46-47% for both species, and a general pattern of increased removal rate with higher concentrations of the soap solution was noted. The maximum soap concentration tested, 0.1%, produced removal rates of 72 and 79% for *A. spiraecola* and *A. gossypii,* respectively.