

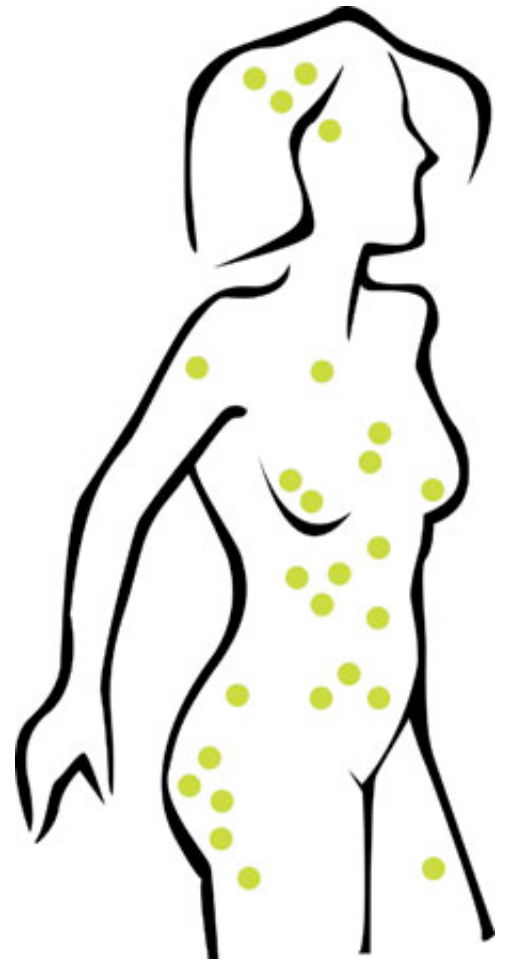
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## Body of Evidence: Contaminated Californians

### *New Tests Reveal that our Bloodstreams May Be as Polluted as our Rivers*

by Peter Warshall

The human body has evolved a great wisdom, refining, over five million years, its ability to fight viruses, bacteria and parasites. Only recently, in the last 50 years, has the human body been forced to deal with a tsunami of new enemies — a deluge of modern synthetic chemical molecules. The dosages, cocktails, and shapes of these new molecules can confuse the development and workings of the body's immune, reproductive, nerve, brain and other tissue systems. Specific chemical compounds, used in such common goods as soap and shampoo and as softeners in plastic products, have been associated with cancers in rats and abnormalities in the reproductive systems of babies. Mothers who eat organic foods, buy non-toxic furniture from Ikea, think diligently about the safest stain- and flame-resistant fabrics, and purchase certified herbal cosmetics still carry a burden of synthetic molecules and toxic traces of industrial metals. Even though a pregnant woman may take great care to avoid chemical exposure, her fetus can absorb part of its mother's pre-existing body-burden of toxics through the placenta.



California state officials, doctors, and a national collaboration of citizen groups have begun to alert the public about how these synthetic molecules tax the body's wisdom. Some scientists and a small but growing number of corporations envision a future of "green chemistry," where synthetic molecules will be manufactured and consumed without causing harm to humans, plants or animals. They see a future in which diseases that are caused or exacerbated by specific synthetic molecules will disappear. As Dr. Michael McCally of Mt. Sinai Hospital put it, "The [industrial] chemicals found in you were not present in your grandfather or mine." Health problems like Down's syndrome, Parkinson's disease, obesity, asthma, certain kinds of cancer and infertility, certain learning disabilities and specific birth defects have all been traced not only to such factors as genetics, sex and age, but, tentatively, to exposure to specific synthetic molecules.

In the spring of 2005, the Commonwealth Biomonitoring Resource Center, a program of the nonprofit Commonwealth health and environmental research institute in Bolinas, took 18 vials of blood, a shank of hair and urine samples from eleven prominent Californians. The samples were then tested for some relatively common industrial chemicals and one heavy metal. Commonwealth tested for synthetic molecules of mercury, bromine, chlorine (DDT), fluorine (including compounds that accumulate in the liver and cause fetal damage); and phthalates and bisphenol A (molecules that can mimic sex hormones and have been implicated in birth defects, cancers, and pregnancy problems).

"Having spent 30 years on the West Coast, breathing relatively clean air and eating virtually only organic food, I was curious to see what my internal toxicology looked like," said actor Peter Coyote, who was one of those tested. After reviewing his test results, and discovering high levels of mercury in his body, Coyote said he was alarmed to

learn that: "My body was loaded with numerous [synthetic] chemicals and toxins." Coyote was struck by the irony that, as taxpayers, we "spend tens of millions of dollars a year to clean up Superfund sites, [but] we spend just a fraction to see if we, ourselves, have become toxic storage sites[and] have upset our biochemical equilibrium."

After receiving his body-burden report card, *Los Angeles Times* columnist Steve Lopez wrote: "The results are in, and it turns out I'm a walking cocktail of toxic chemicals. I've got a jigger of lead in me, a splash of flame retardant and a dash of DDT. But none of this came as a surprise, and before you take pity, let me remind you that your organs are probably marinating nicely too.... What's different in my case is that I've got the evidence right here in front of me.... To be honest, there's little evidence of links between chemicals and specific diseases, and we don't know much about safe levels of exposure. Still, it was a little unnerving to read that... my mono-ethyl phthalate count was more than 40 times the median."

Most synthetic molecules are like "second-hand smoke" — they spread with invisible stealth, they are eaten, inhaled, imbibed, and absorbed through the skin. They can be found in adhesives, plastics (like Nalgene water bottles), food containers, Teflon-coated stick-resistant pans, the fumes from new-car interiors, under-arm deodorants, cosmetics and shaving creams, hair sprays, colognes and perfumes, contact lens cleaners, dental sealants, VCR head cleaners, stain-resistant rugs and fabrics.

No one knows the safe levels for most of the more than 80,000 synthetic molecules now circulating around the globe. In 1962, when Rachel Carson first alerted the world to the environmental and health dangers of the pesticide DDT, there were only a few thousand synthetic molecules. By 1974, there were 25,000 new man-made molecules. By 2000, there were more than 85,000 and new synthetic molecules were being manufactured at a rate of 1,500 per year. Today, the U.S. produces or imports more than one million pounds each of 2,800 industrial chemicals.

## Testing for Toxics

Body-burden tests can cost from \$150 for a short-list of pesticides to more than \$10,000 to test for 400 synthetic molecules and metals. Commonweal's tests averaged \$3,000. You can't just walk in and ask a doctor for the tests. Only a few labs are currently equipped to perform these tests and they need to have a big order since each series requires costly calibrations of equipment.

Nevertheless, "bio-monitoring" is fast becoming a top-of-the-line grassroots environmental issue thanks, in part, to growing media attention. Bill Moyers had his body tested and dedicated an edition of his PBS show to discussing the alarming results. Robert F. Kennedy, Jr.'s latest book, *Crimes Against Nature*, implicated mercury in vaccines as a contributing factor in the rise of childhood autism. Betty Ann Boswer, correspondent for the *PBS NewsHour*'s science unit, ran a disturbing report on bio-monitoring.

## Who Regulates the Industry?

All this belated hoopla over humanity's toxin-tainted tissues can be traced back to the chemical industry's inability to police itself and the EPA's failure to regulate the manufacturers. Thirty years ago, the Toxic Substances Control Act gave industry its chance to address the safety issue through voluntary measures. The law required businesses to reveal basic data on high-volume synthetic molecules but the chemical industry lobby managed to win two loopholes: First, all chemicals would be considered "innocent until proven guilty" and second, it would be the manufacturers, not the EPA, that would pay for and oversee safety-testing of new chemicals. As a result, by 1999, the EPA estimated that fewer than 200 of the chemical industry's 2,800 high-volume synthetic molecules had been tested for health impacts.

Under mounting criticism, chemical industry representatives have taken to repeating the same excuses used by the tobacco companies and the manufacturers of leaded gasoline: "Comprehensive testing is too expensive." "We're all made of complex molecules." "The risks are miniscule." "Government regulation will punish the market." The truth is, no one knows whether the risks are miniscule or not. Moreover, synthetic molecules created-for-profit in a corporate laboratory are not the same as the diverse chemical compounds that exist naturally on Earth.

The science of chemical toxicology today stands about where the study of malaria was a century ago. At that time, doctors believed that malaria was caused by *mal aire* — the "bad air" found in swamps — rather than mosquito

bites and parasites. Doctors assumed that malaria came from swamps, but the mechanism was a mystery. Today, we assume that many of our diseases arise from the witches-brew of synthetic chemicals that fill our modern "industrial swamp" but connecting the dots from one chemical or cocktail of molecules to a specific disease still requires more research.

As evidence of chemical poisoning mounts, only a few industries have adopted the Precautionary Principle — assuming that a synthetic molecule is "guilty until proven innocent." Most chemical manufacturers appear more willing to risk being hounded by insurance claims, hauled into court, or dragged through the media and shamed for ignoring good science. But, beware of stereotypes. There are some good corporate citizens. Gerber's decided it was safer to "go organic" with the ingredients in its baby foods. Ikea decided to avoid stain- and spot-resistant chemicals in their fabrics and to remove harmful wood preservatives in their furniture. Some toy companies have dropped phthalates (a plastic softener) from infant teething rings based on increased evidence that this hormone mimic can cause developmental harms. Doctors and nurses in Health Care Without Harm have convinced many hospital supply manufacturers to remove phthalates from IV-tubes and PCBs from disposable gloves and sheets.

After decades of waiting for the chemical industry to clean up its act (and having seen no willingness to act by Congress or the EPA), grassroots groups found two allies in California Senators Deborah Ortiz (D-Sacramento) and Don Perata (D-Oakland). They joined forces to write and co-sponsor SB 600, the "Healthy Californians Biomonitoring Program."

SB 600 would have made California the first state to pursue body-burden bio-monitoring to track exposure and bio-accumulation and to use this new information to identify public health "hot spots." SB 600 would have authorized the Department of Environmental and Occupational Disease Control to investigate select synthetic molecules and metals now in use throughout California. An Advisory Panel was to decide on testing locations and report the results to the legislature by 2010. Both houses passed SB 600. Faced with mounting public support for the measure, the Chamber of Commerce backed off trying to kill the bill. The US Center for Disease Control even offered \$1.7 million for training, laboratory analyses and technical assistance. Unfortunately, despite this overwhelming support, Gov. Schwarzenegger vetoed the bill at the last minute.

Rest assured, the bio-monitoring bill will be back. Rachel Carson called for the tide to change in 1962. Maybe her dream will go mainstream in 2006 and Californians can get to work ridding our industrial swamps — and our bodies — of these harmful synthetics.

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