Message

From: PEIRCE, BOB [AG/1000] [/O=MONSANTO/OU=NA-1000-01/CN=RECIPIENTS/CN=819117]
Sent: 7/30/2008 8:11:26 PM
To: DRAKE, LISA M [AG/1085] [lisa.m.drake@monsanto.com]; BURCHETT, ANDREW [AG/1920] [andrew.burchett@monsanto.com]
CC: MITCHELL, BRADLEY C [AG/1000] [bradley.c.mitchell@monsanto.com]; COMBEST, JOHN C [AG/1000] [john.c.combest@monsanto.com]; YOUNG, GLYNN [AG/1000] [glynn.young@monsanto.com]
Subject: Poisoned Profits book
Attachments: Poisoned Profits ACC Summary of Book.doc; Poisoned Profits Monsanto Mentions.pdf

Lisa and Andrew,

I was asked to give you a heads up on a new book coming out on August 12, written by Philip Shabecoff, the former environmental editor of the NY Times and his freelance writer wife, Alice Ahabecoff, called, "Poisoned Profits - The Toxic Assault on Our Children."

We have a detailed summary of the book, prepared by ACC, and the pages from an advanced copy of the book that deal with Monsanto. The book covers a number of former products, including aspartame, Lasso, PCB's, Agent Orange, as well as a current product, Posilac. We've attached both.

We will prepare statements and have a communications plan in place to deal with the book, although I'm inclined to think we won't get a great deal of media calls, because most of the book covers things that already have been reported, uses such sources as other newspaper articles and makes a very one-sided case that chemicals are increasing childhood disease. ACC has a detailed communications plan that we will be happy to share by phone, if you'd like. We are going to coordinate with the ACC response and also plan conversations with CropLife this week. Please let us know if you have questions. If you get media calls, please refer to us in St. Louis. The book is published by Random House which has a pr plan to promote the book and a Web site to promote the book, called poisonedprofits.com.

Thanks.

Bob

SUMMARY OF

Poisoned Profits - The Toxic Assault on Our Children
Philip Shabecoff and Alice Ahabecoff (2008)

FOR INTERNAL USE ONLY – NOT FOR EXTERNAL DISTRIBUTION

Executive Summary

Posioned Profits is marketed as revealing the "frightening and expanding dimensions of children's chronic illnesses in the U.S." and the authors are said to "definitively link this epidemic to industrial toxins." The book indeed argues that children are exposed to a vast array of chemical pollutants which are linked to or causing a variety of health ailments, that the chemical industry is to blame, and that the government has failed to step in and act to protect children.

The authors have sought to structure the presentation as a "crime story" from the standpoint of a prosecuting attorney "pointing at those responsible" for the "toxic assault" on children and their abettors (p xiii). Accordingly, chemical-specific attacks are woven throughout the book, but appear to be presented primarily as support for the authors' general arguments (rather than intended as direct attacks at any particular compound). Marketing materials call two stage-setting stories about Dickson, Tennessee (TCE) and Port Neches, Texas (butadiene) "piercing case histories."

The primary chemicals highlighted throughout the book, to the extent that the authors single any out for special treatment, are trichloroethylene (TCE), phthalate esters generally, bisphenol-A, PFOA, butadiene, pesticides generally, methylmercury, DDT, PCBs, dioxin(s) generally, triclosan, perchorethylene, PVC/chlorine, Dursban, Atrazine, and formaldehyde.

Virtually every attack that has been made on the chemical industry in the last decade is trotted out in the book. Among other things, the book faults the operation of TSCA; praises REACH; argues in favor of the application of the precautionary principle; and argues that industry-funded science is inherently tainted. The book claims that there is a "revolving door" between industry and government (p. 161). Chapter 9, *Witness for the Defense*, argues that the chemical industry has adopted the tactics of the tobacco industry – as carried out by the Weinberg Group – of "creating doubt" which allows the "manufacturer to mischaracterize fundamental policy conflicts over protecting health as, instead, disagreements over science (p. 172).

The arguments and examples presented, however, are largely if not entirely regurgitated from other sources. There appear to be no new illustrations that have not already been presented by NGO campaigns, in litigation, or by environmental activists elsewhere.

The book is not presented in journalistic fashion; on no occasion does it attempt to present a balanced case (there are strikingly few concessions, which stand out for their rarity, e.g.,: "[c]hlorine-based chemicals have created a cornucopia of useful

products that have been of great benefit to human society" (p. 137)). Virtually all of the authorities cited are well-known activists or others engaged regularly with the environmental community, e.g., Philip Landrigan, Ted Schettler, Richard Clapp, Jacqueline Warren; Jay Feldman, Bruce Lanphear, Eric Schaeffer, Lois Gibbs, Ellen Silbergeld, Ken Cook, Theo Colborn, and John Peterson Myers. The book functions as a one-sided assault on the chemical industry and chemicals.

The authors also make various statements that do not appear to have been well-researched or fact-checked, and may have been lifted wholesale from NGO materials. For example, they claim that "most" of the chemicals entering the environment have not been tested for "the full range of toxicity to humans" (p. 18). Bisphenol-A is called a "plastics softener" (p. 59). There are also a number of shocking if not outrageous speculations/assertions, such as "Is it possible that toxic chemicals contributed to the violence in schools such as Columbine and Virginia Tech? Many of the places where students who committed these terrible crimes lived are near toxic waste dumps or like Columbine, are toxic military bases" (p. 124).

Chapter 7, entitled *Perpetrators*, castigates a number of specific companies. GE is blamed for its handling of PCBs (pp. 126- 135). Monsanto is charged with having manufactured aspartame, Alachlor (Lasso), bovine growth hormone, agent orange and 2,4-D. The authors state that "[t]here is mixed evidence about the dangers of all these products and Monsanto has defended them as safe. But there is a sufficient body of research to suggest that they all can present potent health risks, particularly to children" (p 136). Dow Chemical, along with chlorine chemistry, receive substantial criticism – "chlorine chemistry also produces many compounds that are among the most toxic and dangerous known to science" (p. 137); see section entitled *A Kingdom Based on Chlorine*, pp. 137-141 (discussing Dursban and Lorsban); and *Trouble in Toms River*, pp. 141-144 (the latter discussing Union Carbide and Ceiba-Geigy plants). DuPont is singled out at pages 144-147 including discussion of PFOA). The Chapter notes that the "list of perpetrators" is not limited to GE, Monsanto, Dow, and DuPont, but "could include many that have placed high volumes of toxics into the environment, including BASF, Velsicol, American Cyanamid, Hoechst, and others."

The book concludes with a variety of suggestions for how parents can reduce the exposure of their children to various chemicals in an appendix. This appendix will likely be widely reproduced and cited.

Highlights of Selected Chemical-Specific Discussion

TCE

The entire introductory chapter, *Inquest*, is devoted to retelling the story of groundwater contamination in Dickson County, Tennessee by TCE. The authors point to a "cluster" of cleft palates in newborn children over a short period of time, as well as a rare brain malformation in two babies and a "large number of hypospadias," a high incidence of heart problems, and "childhood leukemia" in an undisclosed number of children (p.5) Local citizens suspected that something in the county landfill was leaching into their groundwater and causing the health effects. Government tests detected benzene, toluene, xylene, and trichloroethylene (TCE) in undisclosed concentrations in county groundwater (p. 6) The presence of TCE in the groundwater is largely blamed on Scovill-Schrader, an automotive parts manufacturer (pp. 6-7).

Chapter Two begins by drawing an analogy between the Dickson County children with birth defects and the victims of a crime (pp. 15-16). The authors then discuss how Dickson could be any community in the United States (p. 16).

Butadiene

The book describes Port Arthur/Port Neches, Texas and suggests incidences of cancer and other health effects are linked to butadiene ("the [football] field was also near a plant that had been the biggest producer of butadiene in the country" (p. 26, see also discussion pp. 25-29).

Phthalate Esters

"School age children carry a burden of about one and one-half times more than adults of a family of chemicals, called "phthalates," used in plastics and cosmetics" (p. 46).

"Among the body of evidence are conclusions of a competing nature. Some studies will claim they have uncovered harm, countered by other evidence claiming benignity. Such is the case surrounding phthalates, accused as an agent of reproductive deformities among male babies – an accusation disputed by industry. Though the family of phthalates was invented in the 1930s, the federal government began to support research into their effects on human research only in 1999 (p. 61).

"In the eye of the storm stands Professor Shanna Swan, a professor of obstetrics and gynecology at the University of Rochester Medical Center. Trained also in epidemiology and statistics, she recently launched the Study for Future Families to track reproductive health over the years to come. She is one of the scientists who definitively documented declines of 1 percent a year in sperm count since World War II in the United States and Europe. It was her research that discovered that lower sperm quality in U.S. men can vary from one area and environment to another and that lower sperm quality in the agricultural Midwest may be due to exposure to pesticides" (pp. 61-62).

"In 2005, Dr. Swan published the results of a landmark study of phthalates funded by EPA and the National Institutes of Health. She and her colleagues found that among the eighty-five mother-son pairs they studied, women whose urine during pregnancy carried higher levels of traces of phthalates were more likely than the others to have baby boys with genital conditions, including smaller penises and a shorter distance between the genitals and the anus. In studies of male rodents, the distance is usually about twice as long as in females, so a shorter distance is thought to indicate the "undervirilization" of males. Boys with this shorter distance were also more likely to have incompletely descended testicles" (p. 62).

"The American Chemistry Council's Phthalate Information Center, a group representing the manufacturers, counters that phthalates "make everyday life more convenient, colorful and fun" and that human exposure is well below the EPA safety margin. The head of the council's phthalates panel argues that differences in genetalia have no known significance in humans and could be caused by natural variability" (p. 62).

"The National Toxicology Program's Center for the Evaluation of Risks to Human Reproduction, refereeing the debate, concluded that evidence of harm to adults was still insufficient, then expressed "concern" for infants and "some concern" for toddlers, strong language for this research body. It stated that if infant and toddler exposure were severalfold higher than that in adults, male reproductive tract development would be adversely affected. Then the center added information showing that's exactly the situation: "Exposure of children one to six years old has been established to be several-fold higher" because of their smaller bodies and immature metabolic systems. The most recent CDC survey of Americans' body burdens in fact found that eleven of twelve phthalates were higher in children than in adults" (p. 62).

"The baby awakens in her room, arguably the most toxic room in the home...If she's chewing on a Little Teethers teething ring, she's ingesting some phthalate molecules, a chemical used to soften plastics, though if it's a Soft Freezer Teether, it's free of pthalates....If the baby takes along her rubber ducky or the Splish-Splash Jesus bath book to her bath, both expose her to another dose of phthalates. (Phthalates, like flame retardants, disrupt the body's hormones.) In the bathroom, the distinctive, unpleasant smell of the new vinyl shower curtain means it's offgassing more phthalates and other unwanted chemicals. Air fresheners may be emitting a lemony and pine smell; the scent derives not from lemons or pine needles, but from [a variety of chemicals] and more phthalates....Getting ready for the day, as you apply makeup and perfume or shave, you encounter more phthalates, there to disperse the scent evenly so that it lasts longer. After you rub a product with phthalates into your skin, the chemical will pass straight into your body and, just two hours later, show up in your urine....Phthalates are recognized as toxic substances under the major U.S. law controlling industrial chemicals, but "companies are free to use unlimited amounts in cosmetics," the [Environmental Working Group] points out (pp. 68-69).

A baby born prematurely "could have been exposed to twenty times more [of DEHP] than the FDA standard. Dr. Ted Schettler...notes that cost-competitive medical products without phthalates are readily available and already in use by a number of prominent medical supply manufacturers and hospitals... (pp. 69-70)

"In the refrigerator, food is probably stored in plastic containers, yet another everyday household item often made of polyvinyl chloride (PVC) with phthalates. After your ten-year-old daughter microwaves leftover mac-and-cheese in a plastic bowl covered with plastic wrap, she may ingest a double portion of phthalates in her quickie meal. Her Barbie doll is made of PVC plus phthalates. If you are expressing breast milk to give later on to your baby, the pump probably contains one of the phthalate chemicals....If a container is microwaved or refrigerated, the molecules may migrate into any high-fat food, such as milk, meats, and cheeses, stored there. Dr. Donald T. Wigle, epidemiologist and author of the textbook Child Health and the Environment, says he even slices off a thin layer of whatever food came into contact with plastic wrap. Some plastic wraps are made with phthalates or another type of softener that leaches, some are not. Glad Cling Wrap contains no softener, and S.C. Johnson reformulated Saran Wrap without any phthalates" (pp. 70-71).

"Phthalates, bisphenol-A, dioxins, flame retardants, and some pesticides, as well as long-banned chemicals persisting in the environment, such as DDT, are major hormone disruptors" (p. 97).

"For example, testicular cancer, poor sperm quality, and male genital tract malformations – where the urethra is in the wrong place in the penis or where testicles fail to descend – are now seen as related. The likely explanation is that fetal exposure to hormone-disrupting pesticides, phthalates, flame retardants, and other chemicals causes permanent abnormal development of cells within the fetal testes, which disrupts the normal, healthy unfolding of development....(p. 105).

"Studies can choose to look at lab animals at a stage of their life when harm is less likely to occur. In an industry study of phthalates, researchers reported that no effect occurred to marmosets exposed and then examined when they were already in puberty. But with these chemicals "it's the developing organism that's affected," Dr. Ted Schettler explains. Or scientists can literally bury the evidence, as Dr. Schettler found when, after obtaining the raw data under the Freedom of Information Act, he discovered that the animals that showed any impacts had been discovered" (p. 180).

Bisphenol A

"Only in the past ten years have studies begun to look at the possible connections between cancer and about twenty synthetic chemicals, notably pesticides, PCBs, dioxin, the plastics softener called bisphenol-A, and solvents" (p. 59).

Solvents also increase the risk of spontaneous abortion, as do hormone-disrupting chemicals from phthalates to bisphenol-A, from dioxing to PCBs" (p. 61)

"Getting ready for school, your daughter puts on a T-shirt with a shiny printed design and fills her bright blue Nalgene water bottle, which she tucks into her backpack. The snazzy-colored Nalgene bottle and other hard (#7) polycarbonate plastic bottles harbor a different plastics ingredient, a molecule called bisphenol-A that was originally invented in 1936 as a synthetic estrogen. (We now know the damage that can be caused by hormone replacement estrogen.) The plastic is used

in most polycarbonate baby bottles, in toddler sippy cups, and in some reusable and microwavable food and drink containers, such as Rubbermaid's Dip'n Snack Tray. The five-gallon jugs that hold "pure spring water" are made of polycarbonate. Bisphenol-A is also usually found in the plastic resins that line food cans, supply pipes, and even dental sealants used on kids to prevent cavities. The chemical, produced in excess of 6.4 billion pounds a year, generates $6 million a day for businesses in the United States, Europe, and Japan.

"Like phthalates, the chemical bonds that create the polycarbonate polymer are not stable. They degrade in water and heat, when exposed to alcohol, soaps, or acids, and simply with age. As they break up, bisphenol-A leaches out" (pp. 70-71).

"Phthalates, bisphenol-A, dioxins, flame retardants, and some pesticides, as well as long-banned chemicals persisting in the environment, such as DDT, are major hormone disruptors" (p. 97).

"Among the many chemicals that can affect gene expression to trigger cancer are the herbicide atrazine, the plastic ingredient bisphenol-A, and dioxin (a by-product of chlorine), the most potent family of carcinogens the EPA has ever studied (p. 101).

"The chemical bisphenol-A even at very low doses also turns rats hyperactive and aggressive" (p.123).

"In organizing a review of studies to bisphenol-A and eighteen other chemicals, the understaffed (two-person) center within [NIEHS] charged with the essential task of evaluating chemicals for their possible harm to human fertility or fetal development similarly turned to a for-profit company for assistance. In this case, the center entered into an eight-year, $5 million contract with Sciences International to assist in this review. When it became public that Sciences International's other clients included Dow Chemicals and BASF, both of which manufacture bisphenol-A, the company was fired. The ensuing report, though it did express some concern for pregnant women and fetuses, otherwise found either negligible or minimal concern; leading bisphenol-A researchers took strong exception to that conclusion, pointing out that Sciences International had excluded from its review a vast array of studies that found harm" (p. 161).

"In another study of industry influence on science, endocrinologist Fredrick vom Saal, the nation's foremost expert on the plastic ingredient bisphenol-A, reviewed the 115 published studies of the effects of low levels of the molecule on lab animals. He found that 90 percent of the 104 independent research studies concluded that bisphenol-A altered brain chemistry or had some other harmful effect; in contrast, all 11 studies paid for by plastics or chemical companies absolved the chemical of any harm. Similarly, when the American Plastics Council gave $600,000 to the Harvard Center for Risk Analysis to review 19 studies of bisphenol-A, the center reported that none of them had found any unusual risk, though three of the reviewers refused to sign the report" (p. 179).

"Researchers can select the lab animal sure to prove their point. A study of bisphenol-A commissioned by the American Chemistry Council, for example, selected a type of rat that had been bred over hundreds of generations to be

extraordinarily insensitive to estrogen hormones, exactly the hormone disruption that bisphenol A seems to cause" (p. 180).

Pesticides

"Among those toxics with the highest number of [associations with cancer] will be "pesticides..." (pp. 59-60).

"Then cross-reference "pesticides" with the other illnesses that exposure can trigger. Asthma is one....Pesticides are also blamed for the sharp rise in premature births in the United States and other nations....Birth defects are another casualty of pesticides...Miscarriages are yet another casualty" (pp. 60-61).

"For instance, mice reacted with increased aggressive behavior and reduced body weight when fed a diet of combined agricultural pesticides, even at low levels..." (p. 123).

DEET

"[W]hile DEET, the active ingredient in many common mosquito repellants and various other pesticides, showed up in children's bodies in higher concentrations than in adults', sometimes twice as high" (p. 46).

Solvents

"If you look at the entries for birth defects, you will see that they are linked not only to pesticides, but also to solvents. Mothers exposed to solvents, according to research such as the multiyear Baltimore-Washington Infant Study, and the wives of men exposed to solvents bore a higher than average number of children with birth defects. Solvents also increase the risk of spontaneous abortion, as do hormone-disrupting chemicals from phthalates to bisphenol-A, from dioxin to PCBs" (p. 61).

Discussion Regarding American Chemistry Council

"Any new chemical that comes on the market today is going through a battery of screens and tests for health and developmental effects" (Chris VandenHeuvel) (pp. 53-54).

"We did, however, try to talk to executives of the American Chemistry Council (formerly the Chemical Manufacturers Association), the industry's chief trade association, to ask for their views about chemicals in the environment and their effect on children's health. We hoped to offer the industry group an opportunity to present its version of the information we were uncovering in our research and to obtain industry views on the issues taken up in this book. Despite our effort, we were unable to do so....[ACC] did send us in advance of our aborted meeting with them a document that proved to be quite instructive about the industry's attitudes toward some of the issues discussed in this book. It was the council's comments on a draft report about toxic chemicals and children's health prepared by the North American Commission on Environmental Cooperation....The council's comments

were, in essence, an attempt to deny that toxic chemicals are a threat to children's health or to minimize their danger" (pp. 148-149).

ACC is said to have spent $27 million on lobbying between 1998 and 2004, and "[s]ometimes it itself has written the laws and rules that are then adopted by politicians to whom the industry has given campaign contributions and wined, dined, and entertained" (p. 148).

ACC "conducts public relations campaigns and helps set up "citizens' groups," which purport to represent consumers on the issues it seeks to influence. It also arranges for scientific research that supports the industry and seeks to place allies in government posts and advisory boards" (p. 148).

"In 2001, [ACC] entered into an agreement with [NIEHS] to fund research "for understanding the possible effects of environmental factors and chemicals on human reproduction and fetal and childhood development" and a similar agreement with EPA. The [GAO] found fault with with partnerships' lack of public oversight" (p. 148).

"One of [ACC's] more intensive lobbying campaigns was to reduce the reporting requirements under the government's Toxics Release Inventory" (p. 148).

"[ACC] even has input into United States diplomacy. According to a report released by a House committee in 2004, the chemical industry has worked with the Bush administration "to undermine a European plan that would require all manufacturers to test industrial chemicals before they were sold in Europe" (p. 148).

The Responsible Care program, while identified as "[one of the seemingly positive initiatives" by ACC, is dismissed (in the Environmental Working Group's words) as "chiefly a response to growing public distrust of the chemical industry after the chemical disaster in Bhopal...primarily a public relations effort to polish the image of a notorious industry that has consistently fought against meaningful health and safety precautions for workers or communities" (p. 150).

Records obtained by the authors from Public Employees for Environmental Responsibility noted that ACC "had become the EPA's leading research partner" during the Bush Administration (p. 159). "One of the joint projects with [ACC] was a study that would have given parents $970 and a camcorder in return for continuing to spray pesticides in rooms used by their babies and infants, to observe their health effects. The study was cancelled following expressions of public outrage at the prospect of using kids as test animals" (p. 159).

ACC spent "[f]abulous sums" - $185 million – between 1952 to 1996 on ads directed at consumers, "which the authors claim was "with great effect" (p. 190).

ACC occupies "luxurious quarters" like "most other industry trade and lobbying organizations" (p. 209).

Discussion of Other Consultants and Researchers

Chapter Nine, *Witnesses for the Defense*, discusses the Weinberg Group (p. 172-173, 177); Jim Tozzi and the Data Quality Act (p. 174- 177); Exponent and Dr. Dennis Paustenbach (pp. 182-184); Exponent and Dr. Betty Anderson (p. 189-190); the Harvard Center for Risk Analysis (p. 184-185); and the University of Alabama and Dr. Elizabeth Delzell (p. 185-187).

ATTN: Robert Peirce

7/30/08

Hi Bob,

The following pages are copied from the book *Poisoned Profits: The Toxic Assault on Our Children.* I have categorized the pages according to topic below:

Agent Orange: Pages 78, 136, 137, 177, 208

Anniston PCB contamination: 134-135, 189

Bovine Growth Hormone (BGH): 136-137

Other mentions of Monsanto: 60, 92, 195

We will overnight this book to you today. Please let me know if you'd like any additional information.

Thank you,

Britt Svendsen
Edelman
(312) 616-1673
Britt.svendsen@edelman.com

U.S.A. $26.00
Canada $30.00

Hodgkin's lymphoma are clearly clustered in agricultural areas likely subjected to pesticides; plotted temporally, the cases creep upward in frequency over the years as the use of pesticides increases. Of all Americans, farmworkers and their children are at greatest risk, with the least protection. Among the numerous pesticide studies, one looked at both household and occupational hazards and found that the mother's and father's prenatal exposures to pesticides, through farm or forest work or through using insecticides to battle bugs in the household and fleas on the family pet, carry greater risks of cancer among their children, especially for brain and central nervous system cancers, than a child's direct exposure.

Using pesticides during childhood creates substantial risk as well. How many parents would use weed-and-seed garden herbicides if they knew that the five most popular varieties are associated with non-Hodgkin's lymphoma? While rates of this illness are on the rise here, they are on the decline in Sweden, where certain pesticides have been outlawed. Pesticides also find their way into the drinking water supply, in air and household dust, as residues on fruits and vegetables, and into the fatty tissues of animals.

Then cross-reference "pesticides" with the other illnesses that exposure can trigger. Asthma is one. For instance, a study of middle-income families in California found that children who had been exposed to pesticides before the end of their first year were four to ten times more likely to suffer from early persistent asthma than nonexposed children. Weed-killing herbicides had an even more severe effect, putting them ten times more at risk of developing asthma. Pesticides are also blamed for the sharp rise in premature births in the United States and other nations; they end up in water during the spring–summer spraying season, with parallel seasonal patterns in prematurity.

Birth defects are another casualty of pesticides. Dr. John Harris, director of the California Birth Defects Monitoring Program, the largest in the nation, concludes that pesticides used at home are associated with birth defects, including limb abnormalities and cleft palate. The program's tracking finds that 20 to 30 percent of California households do buy pest products, such as Monsanto's Roundup, the herbicide used on home lawns and on genetically modified crops. "Names like Roundup make them sound cute and harmless," Dr. Harris adds with more than a touch of anger.

their way into the food chain. The smokestacks that once were part of many medical centers sent plumes of dioxin into the air as they incinerated common hospital medical supplies made from PVC, such as IV bags and tubing. "When I ran an HIV clinic for women, we thought the more we incinerated, the safer we were making everyone. Eventually we found out that the very bags we burned came back as dioxin in breast milk," Charlotte Brody recalls. She went on to help found Health Care Without Harm, a campaign to replace PVC medical devices with safer alternatives. "Today there are fewer than one hundred medical waste incinerators in the country, down from four thousand just ten years ago."

Thirteen southern states, stretching from North Carolina to New Mexico, receive the major portion of all dioxin releases. Of the twenty-five counties in the United States that account for the greatest burden of air-polluting chemicals that can damage children's bodies and brains, fourteen are home to African American populations.

For a taste of really bad air, visit Houston's East End neighborhood, a place that looks and smells like hell or perhaps Mordor. Juan Parras, a social worker and teacher at Texas Southern University's Thurgood Marshall School of Law, has worked for years with his son Brian to organize this poor Latino community of little run-down houses on dirt streets, hiding in the interstices of land between one hulking oil refinery after another, built here because the area abuts the Houston Ship Channel. Texas Petrochemical, Goodyear, Shell, Monsanto, Exxon, and Mobil are here, fifteen miles of flaring smokestacks, domes, train yards, and storage sheds. The only rise in the landscape are the mounds of concrete pebbles churned out from a crushing facility, adding toxic particles into the air to join the acrid, nauseating fumes of butadiene, styrene, sulfur dioxide, and volatile chemicals. Children living within two miles of this area have a 56 percent increased risk of contracting acute lymphocytic leukemia.

PERIL IN THE GRASS

While your family was away from home for the day, the lawn company came by for the scheduled application of Weed B Gon, the best-selling herbicide. Its main ingredient is a chemical by the name of 2, 4-D, a member of the same family of phenoxy chemicals as Agent Orange, both produced by Dow. The herbicide remains active for days, a potent

many cities and states are banning sugary soft drinks and some other junk foods.

The food industry, which spends roughly $10 billion a year marketing to children, applies many of the public relations and science-for-hire strategies as the tobacco industry. The Center for Food, Nutrition and Agriculture Policy, currently based at the University of Maryland, was originally founded by the Grocery Manufacturers of America (GMA), and now executives from GMA, DuPont, Monsanto, Kellogg, and Kraft Foods sit on its advisory board.

SpongeBob SquarePants and other lovable characters peddle "fun" foods. Shrek's portrait attracts kids to his namesake cereal, made of sweetened corn puffs, marshmallow pieces, and one-half ounce of sugar for every ounce of serving. The National Academy of Sciences has found this advertising situation so alarming that it has called for restrictions on the ads. "We have created this monster by allowing trash food marketers to prey on our children and by letting our children disappear into video screens," writes *Boston Globe* columnist Derrick Z. Jackson.

The marketing that pervades modern life has made food a unit of entertainment. It has lost its meaning as the foundation of life. Yet a mother's food choices before and during pregnancy make a critical difference to fetal development. For example, the risk of neural tube defects, cardiovascular disease, and cancer rises among the offspring of women whose diet during pregnancy is low in folate, a nutrient that boosts DNA production. The risk of cancer also increases if a mother, while pregnant, fails to consume enough of the foods, such as meats and beans, that are rich sources of glutathione, needed to repair the oxidative DNA damage wrought by toxins. The iodine deficiency that plagues one-third of American women leaves them deprived of thyroid hormones. So, too, the food that infants and children eat, or do not eat, can aid or add to their propensity toward illness. "The dominance of psychoanalytical, behavioral, and pharmacological approaches to illness have abrogated any major attempts to look for food or chemical triggers for their patients' illnesses," conclude Drs. Nicholas Ashford and Claudia Miller, experts in understanding multiple chemical sensitivity.

self to be more competitive in the green technology field by producing such products as high-efficiency turbines, it would be a welcome move. It would be supporting action to limit the pollution that is causing global warming. The company's green credentials might be more firmly established, however, if it would thoroughly clean up Pittsfield, Massachusetts, and other communities it has tainted at the expense of children's health and avoid, from here on, activities that degrade the environment.

THE SOURCE

In fact, General Electric did not actually make the PCBs it used in its electrical equipment and spread around so liberally in Pittsfield, the Hudson Valley, and elsewhere in the country. That task was performed by the Monsanto Company, another industrial giant, which produced the fluid using specifications set by GE and other manufacturers. They were produced in a town in Alabama called Anniston, in a section of the city populated largely by African Americans.

PCBs had been made in Anniston since 1929, first by the Swann Chemical Company, which was acquired by Monsanto in 1935. According to descriptions by residents, environmentalists, and scientists such as David Carpenter, contamination in that town is so severe that it makes Pittsfield and the Hudson Valley seem almost pristine by comparison. For almost forty years, the company "routinely" dumped millions of pounds of toxic wastes, including mercury and other hazardous substances but chiefly PCBs, into streams and open landfills in and around Anniston. Thousands of Anniston citizens filed damage claims against Monsanto on behalf of themselves and their children. Residents of the community had "exceptionally high" PCB levels in their bodies, according to Dr. Carpenter, who served as a consultant to plaintiffs in the lawsuits.

Monsanto spun off its chemical division, which produced the PCBs, into a firm called Solutia, Inc. Solutia agreed to spend over $600 million to settle the suits. The company also has been required to conduct cleanup activities to remove chemical contamination. But many, if not most, of the residents of the town are said to be dissatisfied. The money cannot remedy what has happened to them and their community.

Writing in the *Los Angles Times,* reporter Ellen Barry told the story

a boy named Manuel Washington whose family lived next to the Monsanto plant. As young boys will, he played in an open meadow and waded in a stream next to the plant. By age nine, Manuel was blacking out and having seizures. When he reached his late thirties, he was too weak to feed himself. And as his life reached an end, he was completely blind and suffered from psychosis, imagining himself attacked by monsters. He died of heart failure in a nursing home at age forty.

According to his sister, the autopsy report listed his death as "acute PCB intoxication in long standing" that damaged his pancreas, liver, kidneys, and brain. The $7,000 his family received as their share of the settlement with the company did not even pay for his funeral expenses, his sister said.

Neither Monsanto nor Solutia acknowledged any wrongdoing when they reached the settlement. As we have noted, making financial concessions without admitting that their activities had caused sickness or other harm is standard practice for corporations when the facts and the law catch up with them. The two companies still maintain that PCBs do not cause serious health problems.

Glynn Young, director of environmental communications for Monsanto, said when visiting Anniston in 2004 that "no data ever has confirmed a connection between PCBs and diseases," although he added that if it were his family, he would be upset.

Documents that emerged during the litigation against Monsanto, however, suggest that the company knew for decades that it was polluting Anniston with dangerous wastes and that it tried its best to hide that information from the community and government agencies. Journalist Michael Grunwald reported in *The Washington Post* that "thousands of pages of Monsanto documents—many emblazoned with warnings such as 'CONFIDENTIAL: Read and Destroy'—show that for decades, the corporate giant concealed what it did and what it knew."

As is the case with General Electric and many big industrial companies, Monsanto has left its toxic imprint on many communities and with a variety of products, some of which are of particular concern for children's health. Writing in the *Multinational Monitor,* published by the organization of that name, Russell Mokhiber, editor of the weekly *Corporate Crime Reporter,* described Monsanto as "a corporation whose financial health in the 1990s is built on products of dubious value that pose serious or unknown risks to consumers and the environment."

Among the products he listed were aspartame, the lower-calorie sweetener sold as NutraSweet; the herbicide Alachlor, sold as Lasso and one of the world's most widely used pesticides; and bovine growth hormone (BGH), which is injected into cows to increase milk production. Monsanto was also a major producer of 2,4,5-T, an herbicide known as Agent Orange in the Vietnam War, and the pesticide 2,4-D, the manufacture of which can leave a residue of highly toxic dioxin.

There is mixed evidence about the dangers of all these products, and Monsanto has defended them as safe. But there is a sufficient body of research to suggest that they all can present potent health risks, particularly to children.

Children are heavy consumers of soft drinks that contain aspartame. The sweetener has been approved for use by the federal government in the absence of substantial evidence of harm. The evidence about its safety is mixed. However, a large-scale bioassay in 2005 by the Cesare Maltoni Cancer Research Center in Italy found persuasive evidence that it was a potent cause of cancer, especially leukemias and lymphomas, in test animals. The report of the study concluded, "On the basis of these results, a reevaluation of the present guidelines on the use and consumption of APM (aspartame) is urgent and cannot be delayed." There is also evidence that the sweetener is addictive and can overstimulate and affect brain receptors. However, a major epidemiological study by the National Cancer Institute found in 2006 that the sweetener did not increase the risk of cancer in older people. The study did not include children.

Milk, of course, is basic to the diets of children, who drink it and eat it as ice cream, cheese, and yogurt in great quantities. Monsanto maintains, with the support of the Food and Drug Administration, that milk from cows injected with bovine growth hormone is no different from any other milk. The company joined with some dairy producers in a "Milk Is Milk" campaign to convince consumers of the safety of BGH. The company is so sensitive to suggestions that the hormone might be dangerous that it tried to intimidate the state of Vermont into giving up its special seal of approval to milk without the hormone and, when that failed, sued a small organic dairy in Maine for advertising it raised its cows BGH-free. The case was settled out of court.

According to the Organic Consumers Association, a public interest group, there is a "wealth of scientific information" about the

BGH and the differences between natural milk and milk from treated cows and that the differences suggest a higher risk of cancer. Treated cows apparently produce an increased level of the hormone insulin-like growth factor 1, whose harmful effects were described in a previous chapter. Consumers Union, after reviewing the literature on BGH, concluded that because children consume so much milk and other dairy products, and because of their rapid growth and development, "higher exposures to IGF-1 in childhood could set life-long processes in motion that determine later risks."

BGH already has been banned in several European countries, including Germany and Scandinavia.

The herbicide Lasso (alachlor) reaches children chiefly through drinking water. The EPA has determined that chronic exposure to high levels of alachlor in drinking water can cause damage to the liver, kidney, spleen, mucous membranes, and eyes and also has found evidence that it can cause cancer over a lifetime of exposure. While the health effects of Agent Orange and its ubiquitous contaminant, TCDD, a form of dioxin, are still considered controversial, it has been shown to cause birth defects such as cleft palate in test animals. It is also believed to cause several forms of cancer, to disrupt the endocrine system, and to cause reproductive problems, including miscarriages and spina bifida, a neural tube defect in fetuses that leads to gaps in the spine of newborn babies. There is also some suspicion that the effects of the chemical on DNA can be carried through several generations.

A KINGDOM BUILT ON CHLORINE

A number of other companies in addition to Monsanto manufactured Agent Orange. And that brings us to the Dow Chemical Company, one of those companies. Dow is one of the nation's older chemical fabricators and perhaps the world's biggest producer of chemicals, depending on how and when "biggest" is measured. The company was founded over a century ago by Herbert Dow, who built a chemical empire on the vast chlorine reserves contained in the briny waters that lay beneath the surface of central Michigan.

Chlorine-based chemicals have created a cornucopia of useful products that have been of great benefit to human society. But chlorine chemistry also produces many compounds that are among the most toxic and dangerous known to science. As the investigative journalist

Act he helped create. He filed the first challenge under the act, questioning the validity of Hayes's studies. In 2006, reacting to Tozzi's challenge, the EPA said it could not validate Hayes's studies because it did not yet have an accepted test for measuring hormone disruption. And thus the agency reaffirmed its earlier decision.

Tozzi's most recent challenge struck at the National Toxicology Program, which evaluates the toxicity of some of the chemicals in use today and has consistently been one of the most thorough and impartial science arms of the federal government. Under the Data Quality Act, Tozzi sought to bar this program from continuing to evaluate the cancer-causing potential of atrazine, claiming it would be a waste of resources since it had already been reviewed and given a pass by the EPA. His efforts delayed the review for a substantial period of time, though it eventually went forward.

WHAT SCIENTIFIC CONTROVERSY ACCOMPLISHES

The defense of a chemical, such as atrazine, by researchers working on behalf of the chemical maker has become common practice. "Traditional covert influence of industry has turned brazenly overt in the last several years," warns James Huff, associate director for the study of cancer and chemicals at the National Institute of Environmental Health Sciences.

Made-to-order science serves many goals: It arms companies with the research and expert testimony to delay or derail regulation, to overwhelm families who bring lawsuits against them and influence verdicts, and to mollify the fears of communities faced with pollution and of consumers faced with toxic products.

"Our company [has] one goal in mind—creating the outcome our client desires," pledges the Weinberg Group, the company that had proved its talents running tobacco's White Coat Project. The firm boasts that it "successfully guided clients" manufacturing Agent Orange out of regulatory trouble; it has defended asbestos and chlorine-based compounds; and it has campaigned on behalf of the phthalate family of chemicals and bisphenol-A (both used to make plastics) against evidence that they can disrupt human hormones. DuPont hired the firm to help cope with the cases of birth defects and cancer in the West Virginia town where its Teflon production facility is located and to counteract the science presented for the EPA's pending assessment of

Ozonoff sifted through letters and documents that came to light court cases against the manufacturers of asbestos, he found evi- not only that corporate executives had known for decades that tos was dangerous, but also that they had outlined and put into ice a defense strategy to protect their product and company prof- and when the information came to light. Asbestos danger is not ited to workers; the fibers are carried home on their clothing, to an especially horrible kind of cancer among their children. The bestos companies thought nobody would ever see the documents, Ozonoff explains. Similarly, the materials with their damning revela- ons of the tobacco industry's tactics are open to the public and re- archers only as an outcome of lawsuits.

Most toxic tort lawsuits end with a settlement, as, for example, in oms River, Anniston, and San Jose. The harm cannot be undone, and no actions take place to prevent similar harm from occurring to other children. The company pays the families a usually inadequate amount of money, while continuing to aver that the chemical in question is harmless and requiring the families to pledge never to discuss the details of the settlement. All the documents remain secret.

REVOLVING DOORS

Witnesses for the defense—scientists, lawyers, and administrators—move often and easily from jobs in government to jobs in for-profit consulting companies and the law firms and trade associations that serve industry, then back again. Like Jim Tozzi, they gather the insider knowledge, experience, and personal contacts in government that make them valuable on behalf of corporate interests.

Exponent recently added Elizabeth L. Anderson to their staff as a vice president. She had worked for the EPA for more than ten years, directing the agency's risk assessment programs and its first use of risk assessment in regulating toxic chemicals. When she left to head the consulting company Sciences International, she was hired by the tobacco industry to debate her former colleagues at the EPA over the "sound science" of the risk analysis that set the amount of the pesticide phosphine that tobacco companies would be allowed to use to fumigate stored tobacco. She was also editor in chief of the journal *Risk Analysis* at the time (and remains so still). On her own initiative, she offered to use her editorship there to "expedite the peer review process" at the journal of a study she and two coauthors had written that minimized

A third assertion is that similar products occur in nature; therefore, man-made, synthetic chemicals cannot be harmful. According to this thesis, all living matter is made of "chemicals." Dioxin, for example, spews forth from volcano eruptions, from forest fires. Potatoes naturally contain arsenic, our bodies produce some bits of formaldehyde. Carbon dating of chemicals in whales allegedly found some that were identical to synthesized flame retardants, a science writer reports; he concludes, therefore, that these are natural compounds, possibly originating in marine sponges, and if so, man-made flame retardants must be harmless.

The fallacies in this assertion are many. Our bodies have had aeons to adjust to naturally occurring toxics. We (and other creatures) produce enzymes that can dismantle natural toxicants; synthetic toxic chemicals accumulate, while naturally occurring toxins can be metabolized and excreted. And as pointed out by John Wargo, Yale University professor, it makes no sense to add man-made harm to harm that may occur from nature.

MONEY AS THE ULTIMATE DEFENSE TOOL

When all is said and done, money remains the most powerful witness for the defense of possible pollutants. For this reason, petrochemical corporations pour hundreds of millions of dollars, both individually and collaboratively, into the coffers of politicians at all levels of government every year, much of it through their trade associations. The makers of chemical, biological, and bioengineered weed-and-seed products for agribusiness, for example, make up CropLife America, which distributed nearly $9 million to congressional campaigns between 1987 and 1996. The top contributors were Dow at $2.5 million, followed by FMC at $1.5 million.

The manufacturers of pesticides for home and garden have their own lobbying group with the comforting name of the Responsible Industry for a Sound Environment (RISE), whose thirty-six members include Monsanto, DuPont, and Dow, among others. RISE and its member firms spent more than $15 million in 1996, the year the new Food Quality Protection Act was under debate, to employ 219 lobbyists, including 69 former congressmen and staffers and federal officials. The cosmetics trade association spent $3.5 million over two years to defeat safe cosmetics bills in California.

Daubert ruling, as the chapter before this describes). But as a result of the attention focused on the legal action by Mekdeci and other mothers who had taken the drug and given birth to children with defects, Bendectin was pulled from the market.

Although a number of studies have found no link between Bendectin and birth defects, others have found links between Bendectin and limb defects, heart defects, diaphragmatic hernia, and oral clefts, and it remains off the market.

Betty Mekdeci, her mother, and her husband, Mike, spent years doing research on possible links between Bendectin and birth defects. While doing so, they found that parents of kids born with defects had relatively little access to information such as sources of statistics about birth defects and research into causes. So they founded a nonprofit organization called Birth Defects Research for Children, Inc., based in Orlando, Florida.

One of its projects was to create a National Birth Defect Registry, a program that looks at potential connections between birth defects and exposures to environmental hazards including radiation, medications, alcohol, smoking, pesticides and other chemicals, lead, mercury, dioxin, and other pollutants. It was to Mekdeci that a sympathetic worker in the Tennessee Department of Public Health pointed the mothers of children in Dickson born with cleft palates. And it was Mekdeci who pointed us to Dickson for this book.

As word got out about Mekdeci's program, she was contacted by organizations and lawyers for Vietnam War veterans who had been exposed to Agent Orange. She set up another registry, and as she collected data on the vets, she found a pattern of birth defects, including learning, attention, endocrine system, and immune system problems in the vets' children. The registry also produced some evidence that grandchildren of exposed veterans suffered birth defects, although, she acknowledges, that case is much harder to make because of all the additional variables in the next generation. Some of the registry's early funding came from the Washington, D.C.–based National Coalition Against the Misuse of Pesticides (now Beyond Pesticides), directed for many years by Jay Feldman, who is one of the tough guys of the movement. Mekdeci is convinced that the dioxin, which is a contaminant of Agent Orange, is responsible for the birth defects. Her organization's research, she said, has uncovered important outcomes to expos-