

Rachel's Environment & Health News  
#798 -- The Chemical Wars, Part 1  
August 19, 2004

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"Here's a riddle to keep you up at night: How come, at a time when the environmental movement is stronger and richer than ever, our most pressing ecological problems just get worse? It's as though the planet has hit a Humpty-Dumpty moment in which unprecedented amounts of manpower and money are unable to put the world back together again." --Time Magazine Aug. 26, 2002

To solve this riddle, we would need to start with economic growth and technical innovation.

German scientists created the first synthetic organic chemical in 1828 and over the next 100 years chemical technologies slowly changed our way of life. By 1935, thanks in large part to the chemical industry, the average American enjoyed a standard of living that would have been unimaginable 100 years earlier.[1] By 1950 the basic needs of most people in the "developed" world could be met, and the production of necessities had given way to the production of conveniences, luxuries, the trivial and the useless. By this time growth and "progress" were synonymous and the imperative for growth had taken on a life of its own.

The growth imperative developed as 500 to 600 large transnational corporations came to dominate the U.S. economy. To maintain stability and avoid collapse, large corporations need to grow, and orderly growth requires that they control markets and stimulate demand.[2] Of course, many economists would argue that consumer demand arises spontaneously from the consumer psyche. However, to make that argument they have to ignore the \$230 billion spent each year by the advertising industry, largely for the purpose of creating demand.[3]

Consumer demand and growth itself are both spurred by technological innovation. Innovation creates jobs and promotions for technologists, and it helps firms hold on to existing customers and recruit new ones. Lastly, technical innovation equates to progress itself -- an unquestioned good. "One would encounter less dispute, on the whole, by questioning the sanctity of the family or religion than the absolute merit of technical progress," wrote John Kenneth Galbraith. Galbraith elaborated on these points first in *The Affluent Society* (1958) and then more fully in *The New Industrial State* (1967).

Once chemists learned how to create novel molecules on demand, rapid innovation was guaranteed -- all it took was clever techniques of persuasion to convince people that they needed all manner of unnatural new items like throw-away cameras and radios, irradiated food, leaded gasoline, lawns without dandelions, and beef laced with gobs of fat. "Better Things for Better Living Through Chemistry," proclaimed one corporate slogan that has since been abandoned; "Progress is Our Most Important Product," said another.

Sprinkled among the many dubious innovations were some genuine advances (antibiotics, for example).

Now rapid innovation is embedded in our way of life, no matter how large the costs or how small the real benefits it may provide. Indeed, rapid innovation now appears to be necessary even if it were to provide no direct benefits to anyone besides those who guide and control innovation. In addition to serving the needs of large corporations, innovation and growth provide other cultural benefits. Innovation churns the economy and expands gross domestic product (GDP). Business people favor growth of GDP because GDP measures market opportunities, opportunities to turn a profit. Furthermore, in the U.S., growth is the preferred solution to unemployment. We "grow" new jobs.

Perhaps most importantly, GDP is our culture's solution to the problems of poverty and low income. This may seem like an unimportant detail, but it is really quite central to solving the riddle of environmental destruction.

The American dream is the story of rags to riches. If the size of the economic pie were fixed, then the American Dream would require the transfer of funds from those with riches to those in rags -- in other words, sharing. However, if the pie is growing, then even the smallest portion of the pie will become larger in absolute terms, thus providing greater benefits to those with low income without any need for sharing. Sharing is a political act that makes explicit our system of values and preferences. Growth, on the other hand, can be made to seem spontaneous, mysteriously guided by an invisible hand free from political ideology or ethical precepts. Therefore, it is crucial -- essential -- for the pie to grow.[4] And, as we have seen, in an economy already capable of meeting most people's necessities, and an economy dominated by large-scale corporations, growth requires innovation.[2]

I believe rapidity of innovation is also crucial -- the more rapid the better -- because it means no one has time to consider the environmental or social costs of any particular innovation until it is too late. Without time for thoughtful examination, rapid innovation propels us forward, flying blind. Under these circumstances, no one can really be held accountable when we occasionally smash into one of those mountains hidden in the clouds. Think of tetraethyl lead, PCBs, CFCs, PBDEs, hexachlorobenzene -- the purveyors of these manifestly destructive innovations have never been called to account, partly because so many people believe that the responsible parties really couldn't help themselves. They had no time to consider the consequences as they plunged ahead, fulfilling their duty to make progress. The cultural expectation of rapid innovation provides an excuse when things go bad.

Expanding the economic pie, to improve the lot of the less fortunate without the need for sharing, is, it seems to me, the

basic political purpose driving rapid innovation, but rapid innovation serves another important function as well. In the past 30 years, those who control rapid innovation have learned to skim off larger and larger portions of treasure for themselves. In 1976, the wealthiest one percent in the U.S. owned 22% of the nation's wealth. Twenty-two years later, in 1998, that same one percent owned 38% of everything.[5] At the rate they're going, that one percent will own 50% of everything about 10 years from now, and will own 2/3rds of all the nation's wealth about ten years after that. It is rapid innovation, incessant change, churning the economy, that creates opportunities for the consolidation of wealth and power -- and it can all be done in the name of improving the lot of the less fortunate.

Furthermore, as a larger portion of the pie falls into fewer and fewer hands, the rest of us retain an ever-shrinking portion of the pie to divide among ourselves. To prevent an absolute loss of well-being under such circumstances (a political powder keg), we must promote constant (preferably accelerating) growth in the size of the pie, which in turn requires a frenzied pace of innovation. Where it will stop, nobody knows.

When the culture of rapid innovation developed after World War II, chemical technologies were managed as if they represented nothing new (just as biotechnology and nanotechnology are being treated today). Chemical wastes were handled as factory wastes had always been handled: dumped into the river, or buried in a shallow pit behind the outhouse. The chemists who developed the new products knew their synthetic inventions were quite different from natural materials -- much more dangerous and long lasting in the environment -- but, then as now, the fiduciary duty to return a steady profit to investors dominated corporate priorities and the chemists went along quietly. Even today, coached by their legal departments, corporate managers may look earnestly into the camera and repeat, "We had no idea these things were dangerous," but the chemists knew what they were doing. An anecdote will illustrate the point.

In 1973, William Walker, a hydrologist with the Illinois State Water Survey, reported a conversation with a corporate chemist in the journal *Ground Water*:

"A few years ago the plant chemist of a large industry in east-central Illinois requested advice from the Illinois State Water Survey on underground disposal of toxic chemical waste from their manufacturing processes. According to the chemist, the plant, located in a densely populated part of town, had for several years burned about 700 gallons per week of a very toxic chlorinated hydrocarbon (polychlorinated biphenyl [PCB]) in a local garbage dump. Strict antiburning regulations being initiated by the State Department of Public Health were to prohibit further disposal in this fashion.... The plant chemist was hopeful that permission could be obtained to dispose of the toxic material in a pit on the plant property.

"...When the chemist was asked if the toxic chemical wastes would blend with native ground water and thereby become diluted to a nontoxic level, he quickly replied, 'Oh no, this material is a hydrocarbon--it will not mix with water but will

float on top.' A further question concerning possible deterioration of the toxicity of the material with time was answered, '6000 years from now it will still be as strong as it is today,' and, finally, when asked what the effects would be on a person who might drink ground water contaminated with the toxicant several years in the future, the chemist replied, 'It would kill him!'"[6]

Once the "innovation at any cost" system got rolling in the early 1950s, an unavoidable consequence was the massive production of toxic wastes and toxic products, all of which eventually enter the environment and many of which persist for years and enter food chains. This soon resulted in contamination of every part of the planet -- from the floors of the deepest oceans to the peaks of the highest mountains -- with industrial poisons known to cause cancer, birth defects, and genetic damage, known to disrupt nervous and immune systems, known to build up in food chains and to disrupt the stable functioning of ecosystems.[7] As a byproduct of all this activity, some 60,300 U.S. workers were killed each year by conditions in the workplace and an estimated 800,000 more were made sick.[8] Obviously, the culture of constant growth and rapid innovation was a prescription for trouble.

Now nearly everyone has known for more than a decade that trouble is upon us in many different forms -- global warming, ozone depletion, intercontinental acid rain, accelerating loss of species,[9] steadily increasing asthma,[10] attention deficit disorders,[11] birth defects,[12] and cancer in children,[13] tens of thousands of leaking chemical dumps that cannot be cleaned up at any reasonable price,[14] and no practical way to prevent the mischievous proliferation of radioactive products and debris,[15,16,17] to mention only the obvious.

Many major corporations seem compelled to deflect attention from these problems by funding the big national environmental groups and spending billions on public relations consultants to convince us all that "toxic sludge is good for you." [18] But the grass-roots citizenry has begun to wake up, and the chemical wars have broken out in earnest.

The chemical wars began at Love Canal in Niagara Falls, New York in 1978 when families began to notice an unusual pattern of illnesses among their children. It turned out that homes had been built near a dump containing 20,000 tons of toxic wastes. Subsequently, formal studies confirmed that children living closest to the dump weighed less than normal at birth and developed various ailments during childhood.[19,20,21,22,23,24] Governments and corporations denied the reality as long as they could -- one apologist for the chemical industry[25] was still denying harm to the children of Love Canal as late as 1995 --but the jig was up in the early 1980s.

Ten years later, U.S. Environmental Protection Agency (EPA) acknowledged the existence of 32,000 locations contaminated with toxic chemicals but even then EPA had no formal process for discovering new sites. Congress's Office of Technology Assessment (OTA) in 1989 estimated that the total number of contaminated sites in the U.S. might run as high as 439,000, including contaminated military properties, mine wastes, leaking underground storage tanks, pesticide-contaminated lands, contaminated non-military federal

properties, underground injection wells, abandoned municipal gas manufacturing facilities, and wood-preserving plants.[14]

In retrospect, the chemical wars were inevitable but were postponed for half a century through the hand-in-glove efforts of government and industry. Chemical technology first fell under a cloud of suspicion in the early 1950s because of doubts about the safety of food additives. Food additives, particularly food colorings, had first been regulated under the 1938 Food, Drug and Cosmetic Act, but regulation was exceedingly lax. Then on Halloween night in 1950, large numbers of youngsters fell ill from exposure to an orange dye that had been approved by the U.S. Food and Drug Administration (FDA).[26,27,28,29] The resulting publicity forced government to reexamine the safety of all approved food additives. Three years of Congressional hearings revealed that several perfectly legal additives caused cancer.[30]

Other bits of bad news entered the public consciousness. In the early 1950s, the cities of Rochester and Troy, New York, were showered with radioactive fallout from bomb tests in Nevada; radioactivity levels measured 1000 times higher than normal; camera film fogged up and people naturally wanted to know what it meant.[31,32,33] Throughout the '50s, magazine articles appeared here and there questioning the wisdom of strafing the nation's food supply with billows of toxic pesticides. By 1959, even the Reader's Digest was carrying articles highly critical of the way pesticides were being used. That Thanksgiving, the U.S. Secretary of Health, Education and Welfare announced that cranberries had been discovered contaminated by amitrole, a pesticide known to cause cancer in rats, and cranberry sales plummeted as the public responded with near-panic.[30]

This was a really serious problem. If the public turned against chemical technology, who knew where it might lead? Children might adopt their grandmothers' wisdom of frugality, perhaps jeopardizing the entire culture of growth and rapid innovation. Government could see the danger as plainly as corporations, partly because these institutions were no longer distinct. As President Eisenhower warned in 1959, government and industry had become pretty much one and the same, "a military-industrial complex," in Ike's phrase, sharing a common vision of control. Since Eisenhower's time, as everyone knows who reads a newspaper, corporate incursion into all the institutions of our democracy has accelerated dramatically -- schools, media, labor unions, law-making and policy bodies, and the election of judges, legislatures, governors, and presidents have all been constrained to serve narrow corporate purposes -- the direct result of consolidating wealth and power in the hands of a tiny elite.[34,35,36]

To be continued.

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1. A. Cressy Morrison, *Man in a Chemical World*. New York: Charles Scribner's Sons, 1937.

2. John Kenneth Galbraith, *The New Industrial State* (Boston: Houghton Mifflin, 1967).

3. U.S. Bureau of the Census, *Statistical Abstract of the United States* (Washington, D.C.: U.S. Government Printing Office, 2002), Table 1253.

4. Richard Douthwaite, *The Growth Illusion*; Revised Edition. Gabriola Island, B.C., Canada: New Society Publishers, 1999.

5. Chuck Collins and Felice Yeskel, *Economic Apartheid in America* (New York: New Press, 2000); revised and corrected data available at [http://www.ufenet.org/research/Economic\\_Apartheid\\_Data.html#p55](http://www.ufenet.org/research/Economic_Apartheid_Data.html#p55)

6. William H. Walker. "Where Have All the Toxic Chemicals Gone?" *Ground Water* Vol. 11 (March-April, 1973), pgs. 11-20.

7. G. Tyler Miller, *Living in the Environment* (Pacific Grove, Cal.: Brooks Cole, 2003; 13th edition; ISBN 0534398073).

8. J.P. Leigh, S.B. Markowitz, M. Fahs, C. Shin and P.J. Landrigan, "Occupational Injury and Illness in the United States. Estimates of Costs, Morbidity and Mortality," *Archives of Internal Medicine* Vol. 157, No. 14 (July 28, 1997), pgs. 1557-1568.

9. Jane Lubchenco, "Entering the Century of the Environment: A New Social Contract for Science," *Science* Vol. 279 (Jan. 23, 1998), pgs. 491-497.

10. A. Sonia Buist and William M. Vollmer, "Reflections on the Rise in Asthma Morbidity and Mortality," *Journal of the American Medical Association* October 3, 1990, pgs. 1719-1720.

11. Ted Schettler, Jill Stein, Fay Reich, Maria Valenti, and David Wallinga, *In Harm's Way: Toxic Threats to Child Development* (Cambridge, Mass.: Greater Boston Physicians for Social Responsibility [GBPSR], May 2000). Available on the web at <http://www.igc.org/psr/>.

12. Larry D. Edmonds and Levy M. James, "Temporal Trends in the Prevalence of Congenital Malformations at Birth Based on the Birth Defects Monitoring Program, United States, 1979-1987," *Morbidity and Mortality Weekly Reports CDC Surveillance Summaries* Vol. 39, No. SS-4 (December, 1990), pgs. 19-23.

13. Lynn A. Gloeckler Ries and others, editors. *Cancer Statistics Review 1973-1987* [National Institutes of Health Publication No. 90-2789]. Bethesda, MD: National Cancer Institute, 1990, Table I-3, pg. I.[41].

14. Committee on Environmental Epidemiology, National Research Council, *Environmental Epidemiology* Vol. 1. Public Health and Hazardous Wastes (Washington, DC: National Academy Press, 1991).

15. Peter Eisler, "Fuel for nuclear weapons is more widely available," *USA Today* Feb. 26, 2003.

16. Charles J. Hanley, "Nations Race Ticking 'Dirty Bomb'", *Newark (N.J.) Star Ledger* March 11, 2003.

17. British Broadcasting Corporation (BBC), "Action Call on Dirty Bomb Threat," March 11, 2003; available at <http://news.bbc.co.uk/go/pr/fr/-/2/hi/europe/2838743.stm> .
18. John C. Stauber and Sheldon Rampton, *Toxic Sludge is Good for You* (Monroe, Maine: Common Courage Press, 1995).
19. New York State Office of Public Health, and Governor's Love Canal Interagency Task Force. *Love Canal: Public Health Time Bomb*. Albany, NY: New York State Office of Public Health, 1978.
20. Nicholas J. Vianna and Adele K. Polan, "Incidence of Low Birth Weight Among Love Canal Residents," *Science* Vol. 226 No. 4679 (December 7, 1984), pgs. 1217-1219.
21. B. Paigen, L.R. Goldman, M.M. Magnant, J.H. Highland, and A.T. Steegmann, Jr., "Growth of Children Living Near the Hazardous Waste Site, Love Canal," *Human Biology* Vol. 59, No. 3 (June, 1987), pgs. 489-508.
22. L.R. Goldman, B. Paigen, M.M. Magnant, and J.H. Highland, "Low Birth Weight, Prematurity and Birth Defects in Children Living Near the Hazardous Waste Site, Love Canal." *Hazardous Waste & Hazardous Materials* Vol. 2 No. 2 (1985), pgs. 209-223.
23. B. Paigen, L.R. Goldman, J.H. Highland, M.M. Magnant, and A.T. Steegman, Jr., "Prevalence of Health Problems in Children Living Near Love Canal," *Hazardous Waste & Hazardous Materials* Vol. 2 No. 1 (1985), pgs. 23-43.
24. Beverly Paigen and Lynn R. Goldman, "Lessons from Love Canal, New York, U.S.A: The role of the public and the use of birth weights, growth, and indigenous wildlife to evaluate health risk," in J.B. Andelman and D.W. Underhill, editors, *Health Effects from Hazardous Waste Sites* (Chelsea, MI: Lewis, 1987), pgs. 177-192.
25. Gregg Easterbrook, *A Moment on the Earth* (New York: Viking Penguin, 1995).
26. Waldemar Kaempffert, "German Scientist Links Incidence of Cancer To the Use of Coal Tar Dyes in Food," *New York Times* Sept. 18, 1949, pg. E11.
27. "Chemists Oppose Food Law Change," *New York Times* Jan. 16, 1952, pg. 27;
28. "Law Change Asked in Fight on Cancer," *New York Times* Jan. 30, 1954, pg. 27.
29. "Agency Assailed Over Ban on Dyes," *New York Times* May 12, 1954, pg. 49.
30. Edward W. Lawless, *Technology and Social Shock* (New Brunswick, N.J.: Rutgers University Press, 1977), pg. 471.
31. Ernest Sternglass, *Secret Fallout* (New York: McGraw-Hill, 1982), chapter 1.
32. "Radioactivity Test Set," *New York Times* Nov. 29, 1953, pg. 25.
33. "Radioactive Rain Falls; City is Sopping but Safe," *New York Times* March 20, 1953, pg. 25.
34. William Greider, *Who Will tell the People?* (New York: Simon & Schuster, 1992).
35. Charles Derber, *Corporation Nation* (New York: St. Martin's Press, 1998).
36. David Korten, *When Corporations Rule the World* (New York: Berrett-Koehler, 1996).

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