

Breast Cancer: The Chlorine Connection

by Joan D'Arco and Joe Thornton, Greenpeace Chlorine Campaign

As the tide of chemicals born of the Industrial Age has arisen to engulf our environment, a drastic change has come about in the nature of the most serious public health problems. For the first time in the history of the world, every human being is now subject to contact with dangerous chemicals, from the moment of conception until death. — RACHEL CARSON, SILENT SPRING, 1962

Two years after Rachel Carson wrote these words in her groundbreaking book, *Silent Spring*, she died of breast cancer. Three decades later, pollution of the global environment and our bodies has grown more severe. Simultaneously, breast cancer is now the leading cause of death for women between the ages of 40 and 55.

Breast cancer rates have risen steadily since the dawn of the chemical age: From 1940 to 1982, breast cancer rates increased by 1.2 percent each year. But more recently, rates have skyrocketed. From 1980 to 1987 alone, the number of breast cancer cases reported in the U.S. rose by 32 percent. The disease kills almost 50,000 women in the U.S. alone each year. Fifty years ago, one in 20 women got breast cancer. Today, a woman has a one-in-eight chance of getting breast cancer during her lifetime.

The breast cancer epidemic is not unique to the U.S. Breast cancer incidence is growing rapidly in virtually all of the world's industrialized countries. In 1980, 560,000 women died of breast cancer worldwide. By the year 2000, that figure is expected to double. The spread of breast cancer is mirrored by rapid increases since the 1950s in a number of other cancers, such as cancer of the testis, prostate, kidney, skin, and lung, as well as malignant myeloma, non-Hodgkins' lymphoma, and numerous childhood cancers.

What is the cause of this cancer epidemic? Scientific evidence suggests that cancer is, in large part, an environmental disease. As far back as 1964, the World

Health Organization stated that 80 percent of cancers were due to synthetic carcinogens. But the powerful "cancer establishment"—the American Cancer Society, the National Cancer Institute, and a number of research and care institutions, all funded and influenced in part by the chemical and pharmaceutical industries—would have us believe that the cause is primarily personal. If we only modify our habits, they suggest, we can prevent cancer: eat right, don't smoke or drink, and stay out of the sun.

The debate over "personal vs. environmental" causes has reached a fever pitch in the breast cancer arena. The cancer establishment officially recognizes only three major risk factors for breast cancer: a history of breast cancer in the family; hormonal and reproductive factors—such as early age at menarche, late age at childbirth, and high exposures to natural or synthetic estrogens; and a fatty diet. The case for the first two is quite strong, but the role of fat in foods remains controversial and scientists have not shown that it is a significant risk factor in isolation from the chemicals that contaminate the fat.

Even so, these "personal" causes do not, in themselves, explain the breast cancer epidemic. In fact, the three established personal risk factors account for only 20 to 30 percent of all incidents of breast cancer. The vast majority of breast cancer cases—70 to 80 percent—do not fall into any of these three risk categories. It is in this category that the scientific evidence points to what women's cancer activists had suspected all



The world's largest hazardous waste incinerator in East Liverpool is still burning, but this White House protest by Greenpeace and community activists did garner national press and presidential attention, resulting in new policies on incineration. (See p. 3)

along: breast cancer is an environmental disease.

Evidence of the environmental connection to breast cancer abounds. Especially suspect are the organochlorines, a class of chemicals made from chlorine which reached large-scale production during World War II. DDT, PCBs and dioxin are some of the more notorious of the thousands of organochlorines, all of which tend to be highly toxic and persistent. Some organochlorines, such as vinyl (or "PVC"), the largest single use of chlorine in the world, and certain pesticides and solvents, are manufactured intentionally. Others, such as dioxin, are formed as accidental byproducts of industrial processes based on chlorine. Paper bleaching, the making of certain synthetic chemicals, the incineration of chlorine-containing waste—all produce dioxin byproducts.

Because organochlorines tend to resist degradation and accumulate in the fatty tissues of living things, hundreds can now be found anywhere on Earth—from the Arctic to the rainforests of Brazil. Organochlorines have contaminated our bodies as well: 177 different organochlorines have been detected in the fat, blood, mother's milk, semen,

and breath of U.S. and Canadian residents. Once in the body, organochlorines have been shown to cause cancer—some linked directly to breast cancer—by creating genetic mutations, disrupting natural controls in cell growth and division, and suppressing the immune system. And many organochlorines are known to mimic or interfere with the body's natural sex hormones, including estrogen. Disruption of hormone regulation—especially of estrogen—is a well-recognized breast cancer risk factor.

A new Greenpeace report, "Breast Cancer and the Environment: The Chlorine Connection," documents the following:

- Women exposed to higher-than-normal levels of organochlorines in the workplace have been found to have very high rates of breast cancer.
- Women with breast cancer tend to have higher levels of organochlorines in their breast tissues than women who do not have breast cancer.
- For decades, breast cancer rates and organochlorine pesticide contamination in Israel were among the worst in the world. Following an aggressive phase-out program for several carcinogenic pesticides in the

(continued on page 2, column 2)

Cancer, Anyone?

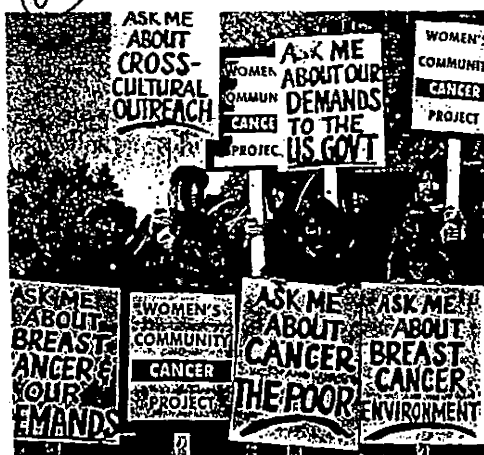
The U.S. Environmental Protection Agency announced in early May that it will no longer allow emergency exemptions for pesticides that violate the Delaney Clause. Enacted in 1958, Delaney prohibits Food and Drug Administration approval of any food additive found to cause cancer in humans or animals. A federal appeals court ruled in July 1992 that the EPA must cancel cancer-causing pesticides found in processed food like ketchup or applesauce, because this violates the clause.

Lobbyists for the food chemicals industry have responded to the ruling by trying to eliminate Delaney during this session of Congress. They argue that Delaney should be replaced with a "one-in-a-million" cancer risk standard.

The Delaney Clause is exceptionally important because it is the only "zero tolerance" standard for carcinogens in U.S. law. Rather than eliminate it, environmentalists are working to add new provisions. We want to prohibit the application of carcinogenic pesticides in the agricultural sector—extending Delaney's reach to include both raw and processed foods—as well as in the non-agricultural sector. We also want to strengthen the federal law with additional controls on pesticides that interfere with the immune, reproductive, endocrine, and nervous systems.

WHAT YOU CAN DO:

To uphold and strengthen the Delaney Clause, Congress must hear from you. Write and tell your senators and representatives that you don't want to live in a million cancer victim and poisoner. Tell the EPA that the use of all carcinogenic pesticides must be stopped. Demand more research and enforcement of alternative pest chemical methods of pest management.



(continued from page 1)

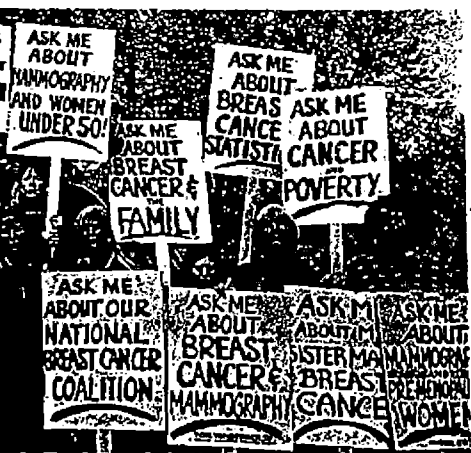
mid-1970s, however, contamination dropped quickly to the levels found in other countries, and breast cancer rates followed by dropping significantly over the next decade, especially among younger women.

Organochlorines are not the only environmental cause of breast cancer, however. Radioactive fallout from above-ground nuclear testing, exposure to other toxic chemicals, and hormones added to meat and dairy products may also have contributed to the rise in breast cancer cases. But the scientific evidence on organochlorines and breast cancer is compelling.

A Prescription for Prevention: The Chlorine Phase-Out

Over the last 20 years, a few organochlorines have been banned or restricted. But thousands are still being produced, and thousands more—like dioxin—continue to be produced unintentionally whenever chlorine is used. Regulating these chemicals, one by one, would take centuries. A more practical solution to the problem would be to phase out organochlorines as a group, with chlorine—the chemical building block of them all—specifically targeted for elimination.

This is the approach recommended in



1992 by the International Joint Commission (IJC) on the Great Lakes, a government-appointed international advisory body. Motivated primarily by the threat these chemicals pose to health of the Great Lakes ecosystem, the IJC specifically called upon Canada and the U.S. to develop timetables to phase out all industrial uses of chlorine and chlorine-containing compounds. President Clinton has yet to respond to this recommendation.

Alternatives are available now for all major uses of chlorine. Responding to international momentum to achieve a global chlorine-free society, several European countries are already leading the way in implementing chlorine-free substitutes for bleaching in the paper industry and for PVC in construction, packaging, and cars. Many U.S. companies and farmers have already found that safer substitutes for chlorinated solvents and pesticides not only work, but save money, too.

Though the evidence is not scientifically conclusive, it is strong enough to warrant a precautionary approach: If we are to win the battle against breast cancer, steps must be taken now toward the elimination of organochlorines.

Resources:

- *Breast Cancer and the Environment: The Chlorine Connection (Second Edition)*, A Greenpeace Report by Joe

Thornton. Send \$5 to: Greenpeace, 1017 West Jackson Blvd., Chicago, IL 60607.

- *1 in 3: Women With Cancer Confront An Epidemic*, Edited by Judy Brady. Chris Press, 1991.
- *The Cancer Industry*, by Ralph Moss, Paragon House, New York, 1989.

WHAT YOU CAN DO:

• **Endorse:** A Woman's Cancer Agenda.
 • **Demand:** of the National Cancer Institute and U.S. government: a. A more information center on Women's Community Cancer Project.
 • **For the Women's Center:** 40 Pleasant St., Cambridge, MA 02139, 617/351-9888.
 • **Identify:** the primary disposal route of incinerator and landfills and use of incinerators. Contact: President Clinton Administration, promise to support a national phase-out moratorium.
 • **Write Congress:** in support of Rep. Bill Richardson's 1991 legislation that would phase out the use of chlorine in the pulp and paper industry within five years. And encourage your state and local governments to phase out all chlorine-free paper.
 • **Write:** Magazine promised to stop using chlorine-free paper. Contact: Magazine publishers. Write to: Steve G. Glick, 100 N. La Cienega, Los Angeles, CA 90048, 310-652-5938. 890 North Point, San Francisco, CA 94109, 415-474-1870. Moving? Duplicates? Send your mailing label with your correct address to: Donors Svcs., 1436 U St., NW, Washington, DC 20009.
 • **Write:** to the National Cancer Institute, 1017 West Jackson Blvd., Chicago, IL 60607, 312-656-3305, Seattle: 4649 Sunnyside Ave. N., Seattle, WA 98103, 206-632-4326. San Francisco: 139 Townsend St., San Francisco, CA 94113, 415-512-9025; New York: 462 Broadway, New York, NY 10013, 212-941-0994. Editorial Office (U.S. headquarters): 1436 U Street, NW, Washington, DC 20009, 202-462-1177 TTY 202-319-2495 (US only). Retail Outlets: 100 N. La Cienega Los Angeles, CA 90048, 310-652-5938; 890 North Point, San Francisco, CA 94109, 415-474-1870. Moving? Duplicates? Send your mailing label with your correct address to: Donors Svcs., 1436 U St., NW, Washington, DC 20009.

Newsletter Editor: Daphne Wysham; Production: Rock Creek Publishing; Intern: Sean Clark. U.S. Offices: Chicago: 1017 West Jackson Blvd., Chicago, IL 60607, 312-656-3305, Seattle: 4649 Sunnyside Ave. N., Seattle, WA 98103, 206-632-4326. San Francisco: 139 Townsend St., San Francisco, CA 94113, 415-512-9025; New York: 462 Broadway, New York, NY 10013, 212-941-0994. Editorial Office (U.S. headquarters): 1436 U Street, NW, Washington, DC 20009, 202-462-1177 TTY 202-319-2495 (US only). Retail Outlets: 100 N. La Cienega Los Angeles, CA 90048, 310-652-5938; 890 North Point, San Francisco, CA 94109, 415-474-1870. Moving? Duplicates? Send your mailing label with your correct address to: Donors Svcs., 1436 U St., NW, Washington, DC 20009.

Greenpeace is an international environmental group with offices in Argentina, Australia, Austria, Belgium, Brazil, Canada, Costa Rica, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Russia, Spain, Sweden, Switzerland, Tunisia, Ukraine, the United Kingdom and the U.S. To receive the quarterly newsletter and support Greenpeace (a non-profit organization) we request an annual donation of \$30. Donations are not tax-deductible. For more information write to us at 1436 U St., NW, Washington, DC 20009.