4. Regulations Affecting Use of Carcinogens

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INTRODUCTION

The complexities of our times are such that anyone who wants to avoid cancer-causing exposure must either learn more about science and technology or live in a state of constant anxiety or resignation. Just as prehistoric man feared the awesome forces of the world, people in industrialized nations live in fear of the world we have created. It is tempting to resign ourselves to the fact that we live in a sea of carcinogens, and there is no way to part that sea.

This book is intended for those people who haven't as yet thrown up their hands in despair, and hopefully never will.

Remember, most cancer is preventable and the means for prevention is at hand. As an oversimplication, we might reduce environmental cancer exposures to two classes: voluntary and involuntary. Cigarette smoking is known to be harmful, and most people in this country who smoke know that. Though it is an addictive habit, it has to be considered voluntary. Air pollution, on the other hand, whether from cigarette smoke or factories, is an involuntary exposure. It is possible to avoid drinking polluted water, but one cannot avoid breathing the air. You can avoid a hazardous job, you can install a carbon filter for your tap water, grow your own organic food, and avoid consumer products labeled as containing hazardous chemicals.

Most of these conditions fall more properly under the heading of involuntary exposure. If you are exposed to a carcinogen and have not been warned because of the failure to properly label the contents of a product, it has to be considered as involuntary exposure. Many products are formulated to have the best eye appeal and the most advantageous physical properties for their intended use: many contain carcinogens that are unnecessary, and the most you can expect as a warning label is a listing of the contents.

Our government, for a host of reasons, cannot do more than order the most glaring cancer hazards removed from our environment. We get to choose among the rest and the more you know the safer you are.

Just as important as individual protection is the collective response of an informed public. As more people become aware of the serious and needless hazards in our environment, the pressure grows for elected officials and government agencies to take strong positions. In this way, the expertise of specialists in both government and industry can be encouraged in the public interest to take preventive steps before catastrophe strikes.

This volume is intended therefore, to place at people's disposal the information needed to avoid some of the dangers not yet restricted by law.

LABELING

Why isn't it on the label? It is difficult to believe that some widely used foods (ice cream, for example) do not require a label listing the ingredients. Other foods containing coal tar dyes, which are required to have ingredient labels, admit only to having artificial coloring, and we know that many artificial colors are carcinogenic. Should the FDA move to ban yet another troublesome dye for showing up positive in an animal feeding carcinogenicity test, a consumer has no way of knowing whether that dye is in any of the family's food. The use of additives in beer, wine, and liquors has been a subject of controversy for over 10 years, yet the government will not require manufacturers to label chemical clarifiers, foaming agents, dyes, and other chemicals that reduce processing time, costs, etc., until 1983.

Vinyl chloride (VC) gas, which causes cancer and birth defects, was once listed merely as an inert ingredient or propellant in aerosol products such as hairspray. Consumers of countless aerosol products which contained more than 50 percent by volume of the deadly gas had no way of checking this on the labels when the newspapers began to carry the tragic news of VC's effects in 1974.

Suffice it to say that even things presumed safe should be ingredient-labeled, in the event that this presumption is someday subject to doubt. And, the use of "plasticizers" in our food would be discouraged if manufacturers were required to list the polysyllabic synthetic alchemy used for such purposes as freshness deception and "mouth feel."

effect by 1983, but right now it's an even bet that they'll wait until 1984 and *proclaim* the water problem solved. George Orwell's Ministry of Water Quality would probably call the pollutants "flavors."

The EPA has additional authorizations under the National Safe Drinking Water Act of 1974. This law was passed by Congress after a storm of publicity following a CBS documentary on water pollution and cancer in New Orleans. New Orleans, which gets all the industrial pollution from wastes dumped along the entire length of the Mississippi River, is not alone. A significant number of cases of cancer of the bladder and liver is attributed to water pollutants in Miami and urban areas of New York and Ohio.

Not all of this pollution results from industrial carcinogen discharges. Chlorination of water to kill pathogenic bacteria forms chlorinated hydrocarbons in the water. The drinking water in Miami has been measured to have 311 ppb of chloroform alone. The EPA is now moving to require activated carbon filtration in cities with over 100 ppb of chloroform and other trihalomethane compounds.

Properly designed and maintained carbon adsorption filtration units can remove a number of carcinogenic organic compounds from drinking water. However, these systems are not cheap, and the old water supply engineering establishment strongly opposes any suggestion that they have not done their duty by eliminating typhoid fever. The American Water Works Association alternates between denouncing concerned citizens as supersophisticated hypochondriacs and publishing reports in the defense of using asbestos cement pipe for water supply systems.

This presents another aspect of the drinking water problem—even if the source is unpolluted, the piping may render the water unsafe to drink. Lead pipes, although no longer installed are still in use in Boston and a few other places. The worst pipe still being installed in water supply systems is asbestos cement. Water contamination may occur as a result of improper maintenance and installation, as well as from normal use. In acidic water supplies, there is a likelihood of corrosion of the pipe surface, resulting in the release of asbestos fiber. Up to 500 million fibers per liter have been measured in United States water supplies, attributable to asbestos cement pipe erosion. With the alternative use of cast iron (lined with cement or unlined), plastic, and other materials, there is no justification for continued installation of asbestos pipe for water supply systems. In 1978, this was an extensive use of asbestos in the United States, consuming over 100,000 tons of fiber.

In order to protect asbestos cement pipe from attack by water supplies in the Northeast United States, vinyl linings have been used in the pipes. However, dismayed health officials have measured over 100 parts per billion of tetrachloroethylene in the water supply, coming from the vinyl pipe lining!

Since home water filters and the use of bottled water are of questionable value from the standpoint of health protection, and since polluted water makes polluted food, people should pressure their local government and industry to clean up the mess at the source to the fullest extent possible.

FOODS AND DRUGS

Food, drug, and cosmetic regulation is the province of the FDA. The FDA was born in the public outrage following the publication of Upton Sinclair's book, *The Jungle*, early in this century.

Ideally, the burden of proof should be placed on any firm that seeks to introduce a new food additive or plastic food packaging, or produces foods using a new industrial process. However, the FDA's authority has rarely been used in a way that would discourage innovation in the food industry. The United States has the distinction of having the most tasteless, nutritionally deficient bread and cheese in the world, with a white paint substitute for coffee cream to wash the food down. Foods are tinctured with coal tar dyes despite the longstanding recognition that many such dyes are carcinogenic and offer no benefits which can even begin to justify the hazards and deceptions they present.

Carcinogenic contamination of foods can occur naturally; it can also occur as a result of the activities of man. Rotten peanuts and grains may contain aflatoxin, one of the most potent carcinogens ever identified. Saffrole, extracted from the sassafras root used in past years to flavor root beer, is carcinogenic in test animals. Asbestos is a mineral, and in regions where it occurs naturally, the local waters may contain high levels of its dangerous microscopic fibers. Minerals in water, good and bad, are introduced into our food supply when the water is used in food processing or directly consumed.

Other aspects of one's diet can also promote the threat of carcinogens in food by altering metabolic reactions, by facilitating physical transport via the circulatory system, by lengthening the digestive process, or favoring retention in fatty tissue and various organs. Epidemiologists have shown that the colon-cancer rate around the world correlates well with the consumption of animal fats. But the picture is complicated by the fact that the high-fat western diet is also low in vegetable fiber. Thus it is difficult to know how much to blame the fat content of the hamburger versus the lack of fiber content in the "building insulation" hamburger rolls. In view of this, the National Cancer Institute has urged that Americans cut down on their fat intake and at the same time increase their consumption of grains and fresh vegetables.

It is the duty of the FDA to ban any food additive that can induce cancer when ingested by man or animal. This "Delaney Clause" section of the law was enacted in 1958, and has been under attack ever since. It recognizes the longstanding scientific concensus that no dose of a carcinogen can be

considered safe and it removes from the FDA the discretion of set "tolerances" for carcinogenic additives in food.

Not included as additives are the countless pesticide residues found on food, crops, and in fish. The FDA tolerances for these are generally set at levels that do not cause disruptions in the food business. Even where there is extensive contamination, for example, Kepone in the James River, there is great pressure from various seafood interests to set tolerances high enough to permit resumed operations as soon as possible. (Half a million dollars paid as a fine for Kepone pollution, earmarked for scientific studies of the problem, wound up being used to buy favorable publicity for the James River seafood industry.) One practical effect of this is that carcinogenic pesticide residues in mothers' milk is now a serious problem in the U.S. We are left with the choice of diminishing our food supply or eating more poisoned food. The continuing pesticide danger results from the chemical industry's promotion of these profitable products, their acceptance by "agribusiness" due to short-term improvements in durable crop yields, and the inability of the EPA to keep track of what is in use, much less regulate it.

Some pesticides that are banned and restricted in the U.S. continue to come in as residues on imported coffees and other food products. There is little or no control over pesticide use in most countries, and some of the same pesticides restricted in the U.S. market are simply peddled elsewhere and "recycled" back to us. The FDA is minimally equipped to analyze imported foods for residues of banned and unregistered pesticides, and it would create an international uproar if the FDA were to block imports of food tainted with the pesticides sold to them by U.S. based firms.

Food additives used intentionally or resulting from contact with food containers are potentially subject to both controls under the Delaney Clause for carcinogens and general provisions in the law against filth in food.

The story of acrylonitrile (AN) soft drink bottles reveals the pressures faced by the FDA in regulating food carcinogens. In the 1960s members of the chemical industry were eager to get a piece of the enormous American "throwaway" beverage container market held by the glass and metal industries. This market was expected to reach 100 billion units per year by 1980 and, if even a modest share of the accumulation of glass bottles and cans along our highways could be turned to plastic, it would be a profitable high-volume business. Practically every big chemical company was working on a formula for a plastic container for beer or soda pop that would not affect taste, lose carbonation, or be banned by the FDA.

In 1974, the world was stunned by the announcement that vinyl chloride, which was used in the U.S. to make 5 billion pounds per year of polyvinyl chloride (PVC) plastics, caused liver and brain cancer in workers exposed to it. Any hopes of selling PVC for coke bottles were dashed, and the field of alternatives was surprisingly small. Every company that had applied to the FDA for clearance of a plastic for soft drinks had a formulation based on acrylonitrile. This substance is also known as vinyl cyanide, and the main theory on the carcinogenic action of vinyl chloride pointed to a similar role for acrylonitrile.

There had been two, small, long-term studies on acrylonitrile. One was done by a graduate student at George Washington University in 1947, and the student noted the finding of some tumors in the small group of (30 male) rats he had tested. It is not known whether the sponsor of this study, American Cyanamid, ever did a microscopic pathological analysis of those tumors: in any case no such work was published. A few years later Monsanto, Union Carbide, DuPont, and Standard Oil of Ohio also started manufacturing acrylonitrile. No studies were published, but in the early 1950s another rat-feeding study was conducted by the Public Health Service. The findings of this study, of which a few records remain, were negative for cancer but there was damage to the nervous system in pregnant females at the high-dose level (500 ppm AN in drinking water).

Monsanto was the first to produce AN plastic bottles commercially. In July 1973, Monsanto tried to defuse opposition by holding a symposium on the environmental compatibility of its nonrefillable, nonrecyclable, non-biodegradable, petroleum-based coke bottle. Samples were given to the attendees, even though the formulation used in 1973 did not ultimately turn out to be acceptable for marketing. The sales-pitch was moderated by Monsanto's Manager of Environmental Affairs of the Lopac® Container Group, Fred Wharton.

Monsanto officials knew that there would be no need to develop a profit-reducing *returnable* plastic bottle if they could get a "throwaway" on the market. Despite this, they said they were expecting to develop a refillable version. There was no reason, either, for plastic to be singled out as particularly wasteful of energy, since the competitive throwaways were just as bad in terms of energy waste, though perhaps not as wasteful of petroleum. Actually, the U.S. *wasted* more energy on throwaway beer and soft drink bottles than 15 other countries (total population: 185 million) used for all their energy needs in 1972.

Monsanto had plans to recover what energy it could from its plastic bottles out of municipal waste. The company got a federal grant to build a trash incinerator in Baltimore that would separate the metals and generate electricity from burning the other waste. At the same time that Monsanto was trying to market its share of the packaging material discarded in the municipal wastes, the taxpayer was being asked to finance a pilot project to process the trash. The project ultimately failed, and led to charges of thievery by the Mayor of Baltimore.

Monsanto had assembled a plastic bottle using two dozen components that it said were approved by the FDA. The main components were the *monomers* acrylonitrile and sty-

rene. These reactive substances were *polymerized* or chemically linked into much larger and relatively inert molecular forms, *polymers*. To the base polymers were added dyes, antioxidants, etc. Catalysts were also used in the polymerization and residues of unreacted monomers remained in the final plastic product. The company even used a formaldehyde compound to recover any loose hydrogen cyanide that might form from the decomposition of AN. The final comment from the conference guests went to Dr. Charles Wurster, one of the founders of the Environmental Defense Fund. He was concerned about the migration of traces of deadly chemicals from the bottles to beverages:

> We're dealing here with a product that is going to be exposed to probably hundreds of millions of people so we have an enormous number of people at risk. There are standard test procedures for all three of those hazards—teratogenesis, mutagenesis and carcinogenesis—and there were no such tests made at least that I can see.

In 1974, with the disastrous news on vinyl chloride, AN-based plastics were on thin ice at the FDA. What broke the ice was a report from DuPont that its nitrile plastic tended to come apart molecularly at high storage temperatures, releasing fresh AN into the contents of the plastic bottle. The polymer chains were unraveling, and thus the threat of a re-release of AN from the polymer chains themselves was added to the threat of the release of traces of residual, nreacted AN.

The FDA was on the spot. Monsanto and five other companies required the issuance of an AN tolerance, on which approvals of their plastic beverage bottles could be based. Yet, the similarities between AN and vinyl chloride, coupled with DuPont's news on the potential for AN release from its own doomed nitrile bottle, could not be ignored. It was agreed that the FDA would issue a tolerance of 0.3 ppm (300 parts per billion) for AN in beverages, if the industry would conduct an adequately designed battery of tests on AN in rats. In other words, the marketing programs would continue, while the FDA waited for the information it really needed to set a tolerance.

In April of 1975, the FDA had to issue an environmental impact statement on the impending introduction of billions of plastic beverage bottles. This requirement was satisfied by a casual evaluation of numerous factors, followed by the conclusion that nothing but "effects related to adulteration or misbranding" was considered subject to FDA action. In other words, the FDA just did not give a damn about environmental impact, and the product would be approved if it cleared the requirements of the Food, Drug, and Cosmetic Act. The analysis required by the National Environmental Policy Act was disregarded as a perfunctory obligation by the FDA.

Interestingly, DuPont had submitted test data showing that when its nitrile bottles were incinerated, high concentrations of toxic hydrogen cyanide, AN, and acrolein were produced.

The Monsanto bottle was soon approved, with the provision that, as long as residual AN monomer in the bottle wall was held to 80 ppm or less, there would be no violation of the 0.3 ppm tolerance for AN in soft drinks. Buried in the FDA's file was a document on the Monsanto bottle showing the functional relationship between residual monomer and the resulting contamination of beverage test solvents (water and vinegar). The actual test data showed a simple relationship wherein three variables determined the extent of contamination for a 10-ounce-size bottle: residual AN in the plastic, time of storage, and temperature of storage. Of concern was the fact that soft drinks packaged in plastic were certain to be stored for long times at rather warm temperatures prior to consumption.

The Monsanto data showed that the AN would leach from the plastic indefinitely, and with 80 ppm of residual AN in the plastic, the FDA's provisional tolerance, would be exceeded when stored for two months at 120° F. Ninety days at 90° F would result in 0.12 ppm, a level easily detectable. Though Monsanto claimed its analytical method for monitoring AN contamination was only sensitive down to 0.05 ppm, the gas chromatograms on file at the FDA showed that the analysis was in fact capable of revealing contamination as low as 0.010 ppm. DuPont used the same method as Monsanto and rated it sensitive to 0.03 ppm. When asked about this, Monsanto's Wharton asserted that the plastic bottles off the production line had less than 40 ppm of residual monomer, and the 80 ppm limit obtained from the FDA was just to give a little clearance for batch-to-batch variations. As for monomer migration, this would not be measurable under actual conditions of storage and use.

Wharton said the bottles were used in his household, and he was sure they were safe. He claimed, "We believe we have demonstrated the safety of our product beyond the requirements of reasonableness." But he could produce no studies of the chronic toxic effects of AN on workers exposed to it, even though AN had been in commercial production since 1940 in the U.S., and Monsanto had made it since 1952.

By October 1975, eight chemical companies, including five with pending petitions for beverage bottles at the FDA, had arranged for a series of tests to be made under the auspices of the Manufacturing Chemists Association (MCA)* with animal feeding studies to be performed at Dow's toxicological laboratories. George Ingle, a former Monsanto official, who was in charge of this effort, presented the testing protocols to a critic of the nitrile bottles over lunch and billiards at the exclusive Cosmos Club in Washington. Ingle was unable to offer an explanation for Monsanto's failure to cover its

*It is now called Chemical Manufacturers' Association.

$100 million investment with a $200,000 chronic toxicity assay.

By this time, Coke was being sold in quart-size, Monsanto "Cycle Safe" plastic bottles, in Providence, Rhode Island.

In April 1976, the Natural Resources Defense Council, an environmental group with a staff of scientists and attorneys, sued the FDA. NRDC charged the government with violation of the law in allowing the marketing of nitrile soft drink bottles before compiling an adequate record on their safety. A revocation of the 300 parts per billion, (0.3 ppm) AN tolerance was demanded in the suit.

The first MCA tests were the Ames mutagenic studies on AN, farmed out to a laboratory that did contract work for industry. The laboratory reported AN negative in mutagenic effects on bacteria. Similar tests were conducted by DuPont, however, and positive findings were reported to the FDA. The Ames test for mutagenicity has a high correlation with carcinogenic activity, and is considered an important screening test for carcinogenic chemicals.

On November 9, 1976, the MCA reported that Dow's tests of teratogenicity were positive. According to Dow, AN fed to pregnant rats in drinking water at 3 doses caused birth defects in the offspring at the high and medium dose levels tested. Other statisticians who examined the data also found evidence of effects at the lowest dose tested. This was a matter of great concern, since other substances such as the drug, thalidomide, had proven to be far more teratogenic in humans than in test animals. Hopefully, this would not be the case with AN as well. It was not hard to imagine what the reaction would be to the idea of a label warning pregnant women against consuming Coke in Cycle Safe bottles.

Things became more complicated in January 1977, when Dow released the gross pathology report of its AN feeding study at the 12-month stage. Only a potent carcinogen would reveal itself so soon in the test.

The report was hardly publishable as a legitimate scientific report. It spoke of dose-dependent rates of tumors in numerous sites among the AN-dosed rats:

- Subcutaneous masses in the mammary region of females at all concentrations of AN.
- Masses of the ear canal among both sexes at the highest concentration, and among females only, at the intermediate concentration.
- Focal areas of hyperplasia and/or polyp formation in the non-glandular portion of the stomach, particularly among the animals fed the highest dose (300 ppm) in water.
- Proliferative lesions of the brain in rats fed 300 and 100 ppm AN in water.

The words cancer, tumor, carcinoma, sarcoma, and malignancy did not appear *anywhere* in this report, but it was obvious to any pathologist that AN caused cancer in the rats tested. The ear canal masses were almost certainly cancers of the zymbal glands, glands that rats have but man does not, which are also attacked by vinyl chloride. As for proliferative lesions of the brain, even if they somehow weren't malignant, they were obviously a mortal threat.

For the next month, the FDA, Coca Cola, and Monsanto worried about what to do when the microscopic pathology report had to be turned in.

Monsanto now claimed that residual AN concentrations in the plastic were running as low as 8 ppm, and the FDA chemists were satisfied that their analytical technique was good to around 0.010 ppm (10 parts per billion). The Natural Resources Defense Council sent a Freedom of Information Request to the FDA demanding to see what levels it was finding in Coca Cola. Meanwhile, efforts were made to contact top management of Coca Cola and tell them the AN bottle was doomed. The FDA issued a proposal to slash its AN tolerance from 0.3 to 0.05 ppm, citing an arbitrary margin of safety and the teratology data as the basis for it. Any further cuts in the tolerance for AN would force the Cycle Safe bottle off the shelves for certain; and, of course, there was the Delaney Clause to consider in the likely event that the feeding test came up in spades on cancer.

About that time, someone familiar with this was visiting columnist Jack Anderson's office, seeking an old Drew Pearson column about a totally unrelated matter. He was greeted by Anderson's right-hand man, Les Whitten, and in the ensuing conversation related the delicate state of affairs on the plastic Coke bottles, which had by this time metastasized down the Eastern seaboard as far as supermarkets in the nation's capital. Whitten picked up the phone and called the FDA press office, where he was well known and said that he wanted everything available on the plastic Coke bottles.

Then, he called Jessie Norris, the Dow toxicologist in charge of the testing, to get her to admit that they had found *cancer*. It was impossible to ask her a straight question about the tumors. Finally, in exasperation he said:

> Look, I already know that you aren't worried about the mammary tumors and the stomach growths, but the brain tumors and the ear canal tumors have got you worried sick.

This flustered Ms. Norris, and she said she was upset that anyone in her laboratory would have talked. Actually, it was a deduction any good pathologist could have made from the data. But all Ms. Norris would say was that most of the masses they had examined were premalignant, not frank malignancies. Thus, Les Whitten would have to tell the story in his own words, not hers. That was Thursday.

Late that Friday afternoon, the FDA called in wire service reporters and announced that the AN tolerance for soft drink bottles was being revoked. This amounted to a condemnation of any AN beverage bottle in commerce. However, they did leave margarine tubs and plastic AN containers for

vegetable oils on the market, even then, concealing the fact that FDA chemists were finding up to 0.035 ppm of AN in margarines. Within days, Monsanto shut down its three plastic bottle plants, laying off 600 workers. The company had produced over 100 million plastic bottles for Coke. Back at FDA, stock brokers were calling to ask if it was for real.

FDA permitted the unloading of stocks already en route to the public. But despite some complaining by Monsanto's lawyer that FDA should pick on glass bottles for food contamination, the FDA stood firm on its ban.

There was no room to maneuver in the manufacturing process. The monomer was not particularly volatile, which made it hard to strip out the residual, unreacted AN from the plastic during the manufacturing process. The heat stability limits of the plastic effectively limited Monsanto to producing a bottle with at least 5 ppm of residual AN in the walls. The AN migration into Coke was running 0.015-0.030 ppm, enough to be reliably measurable. In the end, even the FDA's chief of toxicology, who had never held a rat in his hands in his life, went along with the ban. In April, Dow reported finding brain tumors in the animals fed the lowest dose (35 ppm) in their water.

Of course, Monsanto wanted a hearing to protest the FDA's action, so the controversy continued through the spring and summer. Early efforts by the National Institute for Occupational Safety and Health to get Dow's animal tissue slides were blocked by Monsanto's lawyers. In a report to stockholders, Monsanto's Chairman of the Board used an interesting phrase to describe the events:

> FDA's decision could cost Monsanto approximately 40 to 45 cents a share on its 1977 earnings—an unwelcome setback to be sure, though not a matter of corporate life and death.

Back in January of 1977 when the first Dow report of cancer in the feeding test appeared, DuPont officials told the FDA, "We think we can help you out on this." In May, DuPont released a report showing an increased incidence of cancer among workers at its Camden, South Carolina, acrylic fibers plant. AN was clearly identified as the culprit.

Coke finally managed to find a plastic bottle that had FDA approval, a polyester bottle developed by — can you guess — DuPont. Though the bottle was not recyclable or refillable, one wag proposed that the polyester throwaways might be ground up in asphalt and used to build highways that would regain their smoothness after a rain.

The effects on the acrylonitrile industry were far-reaching. Now that the industry had at last been required to do animal testing with the substance, hazards and liabilities long ignored finally received attention. OSHA dropped its workplace limit for AN in air from 20 to 2 ppm, a 1946 standard already discredited by Japanese studies in 1972. The EPA put AN on its list of most toxic water pollutants slated for regulation. EPA's air pollution branch went to work on development of its own standards for AN, which was previously released in substantial quantities at plants manufacturing the colorless liquid for use in the plastics, paint, rubber, and textile industries.

Though the billion-pound-a-year boom in soft drink containers never materialized, the AN business has steadily grown in the United States. As the 1980s begin, AN consumption is on the order of 2 billion pounds per year in the U.S.

Meanwhile, animal feeding studies contracted by Monsanto revealed target organ tumors from AN at only 1 ppm in drinking water. And the last round of tests from Dow labs showed AN to transplacentally carcinogenic in rats (i.e., cancers developed in animals exposed to AN only prenatally).

Monsanto has dropped its efforts to convince the FDA that it is perfectly all right to drink a synthetic organic carcinogen in soft drinks and beer. But the company has come back, with a tax-deductible multi-million dollar media campaign to sell its politics to the public. The promotion is something between the old, "better living through chemistry" routine and the chemical cosmetic ad lure of better loving through chemistry. Running on prime time in the middle of CBS evening news, Monsanto intones, "Without chemicals, life itself would be impossible."

CONSUMER PRODUCTS

Except for cosmetics, which are supposedly regulated by the FDA, and a few other items such as tobacco, consumer products are the province of the Consumer Product Safety Commission. CPSC was set up by Congress in 1972, to enforce a new law, the Consumer Product Safety Act, and two older ones—the Flammable Fabrics Act and the Hazardous Substances Act.

Unfortunately, the new agency was used as a dumping ground for lateral transfers of incompetent bureaucrats. Despite growing public concern about carcinogens in consumer products, the CPSC was extremely reluctant to regulate health hazards.

The CPSC has remained so inept at everything besides bureaucratic avoidance of statutory responsibilities that it has been virtually impossible to recruit top-notch people to rebuild the Commission. Congressional oversight committees have flayed the Commissioners for the agency's shoddy record on regulating carcinogens, but to little avail. Some of this record is worthy of review, if only to appreciate the importance of public interest and consumer organizations in pressing a regulatory body to do its job, often in the face of reluctance that resembled defiance.

In January of 1974, B.F. Goodrich announced that some of its workers exposed to vinyl chloride (VC) were dying from an extremely rare cancer of the blood vessels of the liver, hemangiosarcoma. Ralph Nader's Health Research