Revolution Against the Megamachine

Stopping the Industrial Hydra

George Bradford (David Watson)

1990

Staff note: George Bradford was a pseudonym used by name]fe_author&taxo[0] [opt] &taxo[0][term]=david-watson][David Watson in these pages.

1. Autopsy of a Petrochemical Disaster

Remember the Exxon Valdez? The ship was the source of the worst oil spill to date in U.S. history, spilling eleven million gallons of oil in Alaska's Prince William Sound, where it ran aground last March. By the time it had limped into San Diego Harbor in July, it also left at least one other oil slick some eighteen miles long off the California coast.

The spill at Prince William Sound was the grand prize in a season of spills. In December 1988, 230,000 gallons of oil were spilled, fouling 300 miles of coast in the Canadian-U.S. Pacific Northwest. [1] In January 1989, an Argentine ship broke apart, spilling 250,000 gallons of oil off Antarctica's Palmer Peninsula near penguin, seal and seabird colonies. In the four months prior to the Valdez disaster, Alaska suffered several spills, including a 52,000 gallon spill at a Kenai refinery, a city pipeline rupture that spilled jet fuel into a creek in Anchorage, and a ship grounding in Dutch Harbor that closed down fish plants temporarily and killed more than 500 birds.

In January alone, the environmental organization, Greenpeace recorded six ship, barge and boat wrecks in Alaskan waters "that released or threatened to release large quantities of oil." One accident dumped two million gallons of diesel fuel into the ocean. [2] Then, in February, Exxon leaked 117,000 gallons of oil in Hawaii. Again, in April, another 10,000 gallons of oil from a mystery spill fouled beaches on the Hawaiian islands of Molokai and Lanai. Later in the spring, over 300,000 gallons were spilled in the Delaware River, another 420,000 gallons were spilled in Rhode Island's Narragansett Bay, and the collision of a tanker and a barge in Texas's Houston Channel dumped 252,000 gallons of oil.

Still remember the Valdez? In a petrochemical civilization, oil and chemical spills go with the territory. Nevertheless, life—or rather, organized death—goes on as usual. The refineries, mines and factories continue to operate, and the traffic continues to roar relentlessly. Oil spills have now—with only sporadic exceptions—dropped out of the mass media, replaced by "crime" and drugs—"America's number 1 problem." As the apparatus turns, its media machine churns. The oil spill in Prince William Sound has become yesterday's newspapers, entering the exterminist Hall of Fame to join, along with others, such jewels as the Santa Barbara off-shore oil rig spill in 1968, the sinking of the Amoco Cadiz off of Brittany in 1978, and the Ixtoc oil well spill off Mexico's Caribbean coast in 1979, as well as Bhopal, Love Canal, the Rhine River, Three Mile Island and Chernobyl, and on and on—a toponymy of extinction. As the hustlers say, pick a card, any card.

Survival, increasingly diminished and constrained, goes on, leaving an array of victims in its wake to pick up what little they can salvage. Everyone else adjusts to the increasing velocity of Progress, putting the wrenching and

infuriating media images of dying animals behind them. They still have to get to work, to play, and to Grandma's house, which is invariably on the other side of Hell six dozen freeway interchanges away. A few pious calls to drive less are heard, but in the absence of a mass strike today against the Machine, everyone keeps driving. The tyranny of mechanized daily life remains intact, and, in fact, is extended by the disasters it unleashes.

Not Just Another Accident

Nevertheless, the Valdez spill should not be denied its uniqueness. In magnitude and in terms of the rich ecosystem in which it occurred, it was exceptional. It occurred in an area containing one of the richest concentrations of animals in North America; 219 separate species of birds alone have been recorded in the Sound. Situated at an important point in the Pacific migratory route of northern latitude breeders, the spill happened just in time to greet millions of birds on their way back north.

From late April to mid-May, the nearby Copper River delta is the world's largest resting area for shore birds, many on their way to nest in the Canadian Arctic. Flocks of as many as a hundred thousand birds stop two or three days to feed, foraging in shallows and at the water's edge, where much of the oil accumulates.

Almost the entire population of certain species pass through the area, for example, twenty million western sandpipers and dunlins alone. It is also rich with hundreds of thousands of black turnstones, tens of thousands of lesser golden plovers, redknots and whimbrels, and thousands of oystercatchers, ruddy turnstones, puffins, tundra swans, Canada geese, snow geese, gulls, cormorants, fifteen species of ducks, peregrine falcons and other birds. Some five thousand bald eagles—the largest concentration in the world—are found in the area. As of September, some 146 eagles were found dead; as many as 70 percent of mothering eagles abandoned their nests, leaving behind oil-soaked eggs and dead chicks.

The world's largest concentration of northern sea otters, some ten to twelve thousand, were also found in the Sound. Probably half died from the spill, but many more are at risk. The effects on seals, walruses and whales are not clear, though they have not been affected as dramatically as the otters. While many animals have been killed by asphyxiation and freezing (one drop is enough to destroy protective coverings on birds and otters and kill them), not much is known about the toxicity of sea water contaminated by oil. Sitka black-tailed deer, feeding on the kelp along the beach, and bears feeding on carrion left by the spill, have died. Deadly chemicals found in oil such as xylene, benzene and toluene not only damage the intestines of large animals and kill them, but threaten the entire food chain by killing and disrupting the zooplankton on which it rests.

Fish such as herring, salmon and shellfish will be adversely affected as well. All in all, some 400,000 animals may have been affected. About 33,000 birds and 980 otters were found dead by official counts, but biologists consider such a number to be only ten to thirty percent of animals poisoned by the spill.

The long-term consequences on the marine ecology are, as is to be expected, also disastrous. Little has been known until fairly recently, but a study by the Smithsonian Tropical Research Institute in Panama, describing the biological consequences of a major oil spill in the Caribbean Sea off of Panama in 1986, found "dramatic effects" both more severe and longer lasting than previously thought. Judging from laboratory tests, scientists once had considered coral relatively immune from oil residues, but this has not turned out to be true. Organisms affected are more susceptible to epidemic disease and are likely to grow and reproduce more slowly than unaffected colonies.

Recent reports on the aftermath of the Amoco Cadiz spill off France's Brittany coast in 1978 also show that oil remains a serious problem for marine life long after a spill. In this case, the massive elimination of bottom dwellers such as urchins, razor clams and tiny crustaceans called amphipods brought about the decline and disappearance of fish species that feed on them. According to a *New York Times* report on the study, "On exposed mudflats that are continually covered and uncovered by the tides, almost all animal life was wiped out." (2 April 1989)

Figures vary on how much of an area was contaminated by the Exxon Valdez, but it was, at a bare minimum, 3,000 square miles, including at least 1,000 to perhaps 1,600 miles of shoreline. The long-term effects are particularly hard to determine given the cold waters and rough seas characteristic of the area. Recovery rates, if such a term can even be used meaningfully, vary widely as well. ("Recovery" can only signify a relative biological stability at a diminished level for a given ecosystem, since none can ever return to the pre-spill state with its full panoply of species diversity.) Furthermore, scientists judge "recovery" based on the ocean's ability to disperse and wash away

oil, a view that implies that dilution of contaminants in the larger ecosystem is recovery. But the oil always goes somewhere, and with it, a steady, generalized contamination of the whole living planet. While the consequences of the overall contamination can never be precisely measured by scientists, the silent pall over inlets and coves around the Sound, once teeming and noisy with wildlife, should serve as an indication. [3]

The Failure of Technology

Even "cleanup" represents one of those cruel jokes of language that mask a grisly reality. Not only do many containment and cleaning techniques prove ineffective, they are often worse than the oil itself on the environment. Chemical dispersants, which are considered to be only ten to thirty percent effective under ideal conditions, are themselves highly toxic. High-pressure water treatment on beaches is very destructive to beach organisms, and the fertilizer used to clean beaches is also toxic. Traffic from workers doing cleanup weakens bottom sediment and destroys habitat. Rescue efforts only save a minute fraction, perhaps ten percent, of animals found, and many tend to return to the same area to be fouled once again. Birds cleaned and returned to the environment rarely, if ever, reproduce, and so are, in ecological terms, already dead.

One great irony is the utter uselessness of the complex technological apparatus that has been developed to respond to oil spills. As Eugene Schwartz has written in *Overskill: The Decline of Technology in Modern Civilization* (1971), technological ingenuity came to nothing in the Santa Barbara spill; the only relatively effective response ended up being the "low tech" strategy of spreading straw as an absorbent and collecting it with rakes and pitchforks.

The immense failure of mass technics is vividly illustrated by Schwartz's description of two oil spills that took place during another season of spills—during February 1970, when in a period of sixteen days four major oil spills occurred in North America: a 3.8 million gallon oil spill in Chedabucto Bay, Nova Scotia; an oil platform fire in the Gulf of Mexico near New Orleans, fed by crude oil and gas escaping from wells drilled into the seabed; a spill in Tampa Bay from a grounded ship that eventually covered a hundred square miles of ocean before washing ashore and killing thousands of birds; and the spilling of 84,000 gallons of gas and diesel fuel when a barge collided with a jetty in California's Humboldt Bay. Such accidents are "powerful reminders" of the helplessness of human ingenuity in disasters, Schwartz writes. "The Gulf of Mexico accident unfolded like a Greek tragedy…:

> "After the fire had been extinguished with the help of dynamite on March 10, oil began to pour from the wells and to form a heavy oil slick. On the same day, the National Wildlife Refuge on Breton Island was menaced when an oil-collecting boom broke. The clean-up was reported to be 'going well' as the boom of heavy mesh fence covered with vinyl was repaired—only to break again. On March 11 the vinyl and plywood dams collapsed in heavy seas and over 1,500 barrels of crude oil began to move toward the oyster beds. The skimmer boats could not operate because of wind and high seas. On March 12 the incident was officially termed a 'disaster' as oil slicks covering fifty square miles of the Gulf neared the oyster beds. If necessary, it was planned to set off fireworks to startle a quarter-million geese to begin an earlier migration northward. On March 13 officials considered setting the oil on fire. An oil slick moved into the marshes of a wildlife refuge the next day while officials scanned wind notices to determine the course of the oil slicks. A well head used to cap a spouting well blew off on March 15, and the escaping oil added to the fifty-two-square-mile slick.
>
> "Faced with a growing oil slick, the oil well's owners smothered the spouting wells with tons of mud and dynamite. They poured dispersant chemicals on the slicks though the effects of these chemicals on the marine life threatened by the oil had not been established…
>
> "The Chedabucto Bay spill transformed the bay into a cold-water laboratory—with primitive measures taking precedence over scientific ones. Efforts were made to burn the spilled oil, but low sea temperatures frustrated ignition efforts with benzene, magnesium, and flame-throwers. Old tires filled with napalm burned doughnut-shaped holes in the congealed oil and sank to the bottom. Chemical dispersants were halted by the government as being harmful to marine life. As at Santa Barbara, sawdust and peat moss were used to soak up the oil on the beaches, and bulldozers scraped up the contamination."

While some of capital's advanced technology may have improved slightly since the 1970s, no equipment is capable of responding to spills in heavy seas. Oil starts sliding under booms in currents of only seven tenths of a knot, and goes over the top in wind and waves. Even large skimmers can only pick up small amounts and can only be used in calm seas. When gale force winds came up in Prince William Sound, the booms just blew away. And in the December 1988 spill along the northwest Pacific coast, high seas thwarted any response. Said a Canadian official, "It was simply a matter of waiting for the oil to hit the beach and clean it up manually." (*Toronto Globe and Mail*, 1 April 1989)

Ultimately, efforts were to prove so ineffectual that the term "clean up" was replaced with that of "treatment" and "stabilization" of shorelines. Even though, after Exxon workers had cleaned up only a half mile of beach, an Exxon spokesman claimed that the beach had been left "cleaner than we've found it," the Times reported that "some of the painstaking cleanup is only spreading the oil around, moving from the high-tide mark down to the water's edge." A state official in charge of an inquiry into the spill remarked, "The cleanup is just not working. It's like trying to get the toothpaste back into the tube." By September, when Exxon announced that it was going to cease the cleanup, the Alaska Department of Environmental Conservation reported that more than 300 miles of "treated" shoreline were still coated with oily muck as much as three feet deep. [4]

2. The Earth is a Company Town

For the institutions that administer and benefit from the petrochemical megamachine, the spill was a "terrible disaster" too, if only a temporary one. The spill indicated, contrary to corporate reassurances of infallibility, that not everything went exactly according to plan, and that can make the natives restless. Exxon and the oil company pipeline consortium Alyeska, along with the usual government and corporate allies, immediately followed the strategy always employed in the wake of a toxic accident—managing appearances with the appearance of management. Thus the reassurances and declarations of concern came rolling off production lines along with slick photos of Exxon workers holding cleaned up, healthy looking otters and ducks.

The model for capitalist crisis management of such disasters remains the toxic chemical gas leak at a Union Carbide factory in Bhopal, India, in 1984. As Tara Jones has written in a recent book, *Corporate Killing: Bhopals Will Happen* (Free Association Books, 1988), "The crisis Bhopal created was one which required, both immediate and long-term management. In the management of this crisis, the victims' needs were totally neglected: the predominant priorities were the economic interests of [Union Carbide] and the Indian state. In the ensuing macabre dance of death, the dead and walking wounded were left by the wayside, while the main protagonists acted to minimize damage to their own interests." For the continuance of industrial capitalism, the accident at Bhopal was not an ecological or even a technological crisis (accidents being inevitable) but rather a public relations crisis, and thus, potentially, a social crisis if people began to take the lessons of the gas leak seriously. Hence, the entire chemical industry worked "to reassure the general public that Bhopal was a rare, chance occurrence that would not be repeated," rather than a dramatic example of a continuous process of toxic contamination.

As soon as the news hit about the oil spill in Prince William Sound, Exxon followed Union Carbide's strategy of cleaning up…the propaganda environment. By hiring nearly every boat in Valdez and Cordova harbors, and with the stipulation that no media would be allowed on them without permission from the company, Exxon prevented most environmental groups and critical journalists from even getting to Bligh Reef to survey the damages. The crew of a fishing boat nicknamed "the Hearse," which brought garbage bags filled with dead animals into Valdez harbor every few days, was told not to bring in animals that had been dead more than two weeks to avoid stirring up reporters.

Exxon's body counts varied wildly from all others. "The numbers just don't match," one disgusted worker told George Michaels of The Animals' Agenda. "The [Exxon] press release says that 500 otters have been brought in dead in the past six weeks. I've counted 600 myself in the past week."

Exxon continued to release regular notices that the spill had been contained and cleaned up even as it continued to grow in size and severity, and produced a slick video entitled "Progress in Alaska," which extolled the corporation's environmental commitment and the success of its response to Valdez, as well as the benefits the industry

has brought to a state which receives 85 percent of its revenues from oil. Full-page ads in newspapers across the country were bought by Exxon to defend its role in the affair, and Exxon maintained tight control of emergency response efforts, much in the way, say, that a mass murderer might be hired to head up the forensics study of the massacre.

The propaganda blitz was intense because the stakes were high. Suddenly, offshore drilling and exploration of sensitive wilderness areas (policies contested even before the spill) were getting the spotlight along with information about oil company practices—leaks of far greater concern to capital than a few million gallons of oil.

Speaking before the National Ocean Industries Association, an organization of companies linked to off-shore oil extraction, Interior Secretary Manuel Lujan warned his corporate cronies, "If the image of an uncareful and uncaring industry prevails among the U.S. public, then we can kiss goodbye to domestic oil and gas development in the Arctic National Wildlife Refuge, off-shore and in the public lands." For Lujan, the Valdez spill might hinder oil exploitation much in the same way that the accident at Three Mile Island stalled the construction of nuclear power projects. And he did not hesitate to call further exploration and extraction, including in wilderness areas, a matter of "national security," even though the coveted Arctic National Wildlife Refuge is estimated to have enough oil for a mere six months supply for U.S. cars and trucks. To the industrialists, the oil must keep flowing at all costs, and one terrifying question—when will society begin to do without oil—is not even allowed. It is a matter of state security: capitalism, certainly, cannot exist without oil.

Meanwhile, the image of a "caring" corporation is disseminated for the gullible. One Exxon publicist called a boycott of the company "unjust," adding that the spill "was an accident—a bad one. But accidents can happen to anyone." This was the accident, of course, that such publicists had formerly claimed would never happen.

Economic Boom = Ecologic Bust

Ever since the construction of the Prudhoe Bay oil field on the Arctic Ocean (the largest contiguous industrial complex in the world), the oil industry provided every assurance of safety to those uneasy with oil development in Alaska's pristine waters and wilderness. Flush with petrochemical plunder, the State of Alaska and the corporations that had staked it out rode a giddy wave of technological hubris and gold-rush corruption. Alaska became a Boom state, providing one quarter of all U.S. domestic oil. In exchange for Prudhoe Bay, the state doubled its budget on public services, repealed personal income taxes, and created a trust fund out of which it pays an annual dividend to all Alaska residents.

Some Alaskans resisted oil development in the beginning, but Big Oil swept all opposition aside, both by using the law to further its own interests and by circumventing it whenever necessary. In the 1970s, fishing communities and environmentalists fought the Alyeska pipeline all the way to the Supreme Court and won, but Congress simply declared the project exempt from environmental laws. State laws were also overrun and modified to accommodate the nine-company consortium seeking to build the pipeline across 800 miles of Alaska wilderness to the port at Valdez.

Oil development came accompanied by promises of the "best technology," safety reviews, and an upgrading of facilities as volumes rose. Not even these dubious promises materialized. Instead of cleaning up toxic pits left in drilling, it is cheaper for oil companies to pay penalties for abandoning them, and even the inadequate environmental protection laws are routinely ignored. As John Greely notes in *The Nation*, Port Valdez was already considered one of North America's most "chronically polluted marine environments" by scientific agencies. Small spills—some 400 before the Valdez spill, were a continuous problem.

Big Oil built itself not just a few company towns but a company state. The wave of new immigrants brought by an expanding economy continued to erode opposition to development and the corporations. Housing, schools, roads, power projects—the whole infrastructure of the modern capital-energy-commodity-intensive society—were constructed with oil revenues. And when society-wide corruption and collusion didn't work, Alyeska used a mix of cover-up, publicity campaigns and legal maneuvers to continue operations unimpeded, for example going into court in May, after the spill, to block more stringent pollution controls at Valdez. Greely quotes a toxicologist, "If Alyeska is an example of how these oil companies operate in an environmentally sound manner, what are the companies doing in more remote wilderness areas with even less supervision?"

A good question. If the idea of a "third world" suggests a plundered colony where brute force, super-exploitation, and a veil of secrecy prevail, then Prudhoe Bay is a kind of third world colony. The complex, encompassing a 900 square mile wasteland of prefab buildings, drilling pads, pipelines, roads and airstrips, matches any nightmare in the industrialized world. Burning fuels blacken the Arctic sky, causing air pollution that rivals the city of Chicago. According to the March-April 1988 *Greenpeace Magazine*, "Some 64 million gallons of waste water containing varying amounts of hydrocarbons, chemical additives, lead and arsenic have been released directly into the environment. Regulators report up to 600 oil spills a year, and five hazardous' waste sites at Prudhoe are already candidates for clean-up under Federal Super-fund law. In addition, the oil companies have been cited for numerous violations of federal and state environmental laws," which does not reveal how bad things are, since many violations obviously go unreported. Road and building construction has thawed the tundra permafrost and caused flooding; this has spread toxic chemicals, and affected an area much greater than the actual development itself.

Hundreds of waste pits overflow during the late spring thaw, killing off small freshwater animals low on the food chain, but also causing dramatic poisoning incidents. Last year, for example, a polar bear was found dead, stained pink from drinking industrial poisons not even normally found together. Other wildlife has been affected. The oil companies are quick to point out that the caribou population is up, but that is largely due to the mass extermination of wolves during 1977–78 by hunting guides when road construction created more access to remote areas. In reality, many questions remain about the caribou and how they will be affected over the long run.

In a letter to the *New York Times*, two people who had been weathered in at Deadhorse (at the heart of the Prudhoe complex) on their way to the wildlife refuge to the east, describe seeing "thousands of vehicles in use and abandoned, ranging from pickup trucks to massive mobile drilling equipment, stacks of discarded oil drums, small ponds with greasy slicks and general debris." Dozens of abandoned structures stand in and around the development at Deadhorse, with no indication that any is to be re-used or removed as oil exploitation (which has already reached its peak) starts to wind down. "Merely to remove the accumulated vehicles, buildings and drilling equipment," they continue, "not to mention detoxifying the polluted tundra and dismantling the roads, airstrips and pipelines, would take years and hundreds of millions of dollars. Who will pay?" (4 April 1989).

Another good question. Yet when one considers what the actual energy expense of building and operating such a vast and remote complex might be, even before an attempt at any kind of "stabilization" of the environment, the realization sinks in that this development is representative of the entirety of industrialism: a massive pyramid scheme that will collapse somewhere down the line when all the major' players have already retired from the game. Of course when the last of these hustlers cash in their chips, there won't be any place left to retire to.

The Greenhouse Effect: Capital's Business Climate

It should go without saying that Exxon and its allies don't try their best to protect the environment or human health. Capitalist institutions produce to accumulate power and wealth, not for any social "good." Thus, predictably, in order to cut costs, Exxon steadily dismantled what emergency safeguards it had throughout the 1980s, pointing to environmental studies showing a major spill as so unlikely that preparation was unnecessary. So when the inevitable came crashing down, the response was complete impotence and negligence.

Yet to focus on disasters as aberrations resulting from corporate greed is to mystify the real operational character of an entire social and technological system. The unmitigated disaster of daily, undramatic activities in places like Prudhoe Bay and Bhopal—even before they enter the vocabulary of doom—is irrefutable proof that Valdez was no accident but the norm. Modern industrialism cannot exist without its Prudhoe Bays. Capital must always have a super-exploited colony, a "sacrifice area" of some kind—the sky, a human community, a watershed, the soil, the gene pool, and so on—to expand and extend its lifeless tentacles.

The real spillage goes on every day, every minute, when capitalism and mass technics appear to be "working" more or less according to the Plan. The Exxon Valdez contained some 1.2 million barrels of oil; at any given time 750 million barrels are floating on the world's waters. In 1979, the amount of oil lost worldwide on land and sea through spillage, fire, and sinkings reached a peak of 328 million gallons; since then it has dropped to between 24 and 55 million a year, except for 1983, when tanker accidents and oil blowouts in the Iran-Iraq War brought the total up to 242 million gallons. Most of the oil in the oceans comes not from accidents but municipal and industrial run-off, the

cleaning of ship bilges and other routine activity. Industry analysts say that major oil spills have declined, but that "smaller" spills continue to take place all the time, a phenomenon paralleled in the chemical industry by focusing on major leaks to conceal the reality of a slow-moving, low-level, daily Bhopal. And no matter how carefully industry tries to-prevent' accidents, they are going to occur; the larger and more complicated the system, the more certain the breakdown. As the head of the Cambridge-based Center for Short-Lived Phenomena (!), which keeps track of oil spills, commented after the Valdez spill, because such an event "takes place so infrequently, and the resources are never available in a single location to deal effectively with it" (meaning because booms can't be stationed every hundred yards along the route, etc.), major spills are inevitable.

In any case, mass society is a continuous oil spill just as it is a constant chemical leak. The eleven million gallons lost by the Valdez on Bligh Reef is matched every year in the state of Michigan alone by citizens pouring waste oil down sewers or on the ground. (See related story "Goodbye, Cleveland," by E.B. Maple, page 8 in this issue.) And while it is true that more safety measures could be taken through institutional and technological reforms (or even by revolutionary workers councils or assemblies), industrialism brings inherent consequences of spills, leaks, inadequate response, inadequate "treatment," and ecological Bust. As petrochemicals are necessary to industrialism whatever the form of management, spills are also integral to petrochemicals.

And what chemicals and oil spills are to a society addicted to industrialism, industrialism is to the living fabric of the planet. This observation was raised by writer Bill McKibben in an essay published on the Op-Ed page of *The New York Times* on April 7. McKibben asked what would have been the result had the Exxon Valdez gotten through without a hitch? If ten million gallons had gotten through to be consumed, they would have released about 60 million pounds of carbon dioxide into the atmosphere. Carbon dioxide is the major component gas causing the greenhouse effect, in which gases emitted in enormous quantities by industrial civilization will trap heat in the atmosphere and raise global temperatures, disrupting and profoundly transforming the planet's ecology—capitalism's 21st century Global Business Climate, so to speak.

McKibben writes that in the next century, "There will be twice as much carbon dioxide in the atmosphere as there was before the Industrial Revolution." The effects are unclear to scientists, but nearly all agree that the burning of fossil fuels combined with the release of chemicals that destroy the planet's ozone layer in the upper atmosphere, the generation of heat from all sources, deforestation and other factors will bring about massive species extinctions, climate and weather changes, flooding and other havoc.

The average car reproduces its own body weight in carbons each year. This is "another oil slick," McKibben notes, being released every day. And while technological modifications to make "clean-burning" cars may reduce pollutants such as carbon monoxide and hydrocarbons as much as 96 percent, such cars will emit as much carbon dioxide as a Model T. Electric cars will pose a similar problem if their energy comes from fossil fuel sources. The production of automobiles, and the production of anti-pollution technology itself, are not even taken into account by this analysis, but the inherent failure of technological reason can be seen. The rate of climate change over the next hundred years may dwarf by thirty times the rate of global warming that followed the last Ice Age. Reducing what comes out of tail pipes won't even put a slight dent in that problem.

"The greenhouse effect," McKibben observes, "is not the result of something going wrong. It doesn't stem from drunken sailors, inadequate emergency planning or a reef in the wrong place. It's harder to deal with than that because it's just a result of normal life." Leaving aside the question of whether or not the phrase "normal life" appropriately describes industrial capitalism, if McKibben's recommendation that "less energy" be used is to meaningfully confront the looming greenhouse crisis, such a reduction in industrial activity will have to be far more dramatic than almost any sectors of society have been willing to ponder so far. It would signal a deconstruction process more profound than any revolutionary transformation of society ever seen previously. Whether or not this prospect is possible is an open question. Whether or not it is necessary is a question that must include the recognition that present environmental effects are the results of activities several decades ago. And since modern science cannot understand thresholds, there is no telling how much time is left, only a certainty that it is running out.

3. Disaster Fuels the Machine: The Hydra

Warnings of the inevitable crash of urban-industrialism's house of cards now appear often in the leading capitalist newspapers. The ruling classes cannot help but suspect that their system is drawing the world toward a cataclysm.

Yet they cannot respond, and grimly go about their business like distracted Ahabs trying to maintain control of their foundering ship. The entropy inherent in their system overwhelms them as they grapple for a helm that does not exist. In this respect they resemble any ruling class nearing the end of its historic journey.

French president Mitterand seemed to sense as much when at summit discussions on the environment last summer he remarked that there was "no political authority capable of making decisions on a global scale." The authority of the modern state cannot find a solution, of course, because it has come to encompass every aspect of the problem itself. Only a planetary revolutionary transformation from the ground up—a revolution now fragmentarily glimpsed in aspects of the radical fringe of the ecology movement, in the indigenous-primitive revival, in anti-authoritarian movements and the new social movements against mass technics, toxics and development—could bring the death train to a halt before it disintegrates and finally explodes under its own inertia.

That revolution remains beyond our reach. Our revolutionary desire must squarely face the fact that disaster itself tends to fuel the system that generates-it, which means that we must abandon the pathetic hope that perhaps this latest horror will be the signal that turns the tide (as Chernobyl was supposed to be, and Bhopal). In *Where the Wasteland Ends* (1972), Theodore Roszak points to "the great paradox of the technological mystique: its remarkable ability to grow strong by virtue of chronic failure. While the treachery of our technology may provide many occasions for disenchantment, the sum total of failures has the effect of increasing our dependence on technical expertise."

That economic and technological spheres are one is confirmed in the way capital rushes into the vacuum momentarily caused by its own crisis, renewing operations and finding new ways to expand and reinforce its global work machine. Thus even the oil spill became good for business once crisis management was functioning, as Exxon took tax breaks, raised prices, and took charge of the "cleanup." Valdez and other towns boomed again as thousands of people and hundreds of vessels and aircraft were hired. (Boom towns quickly folded into a shambles when the company closed its operations, but by then investment had already moved on.) San Diego, where the ship was moved for repairs, also enjoyed its 25 million dollar mini-boom. Other spin-offs included the companies developing new cleanup techniques, scientific organizations doing new studies on the after-effects, and public relations.

And extraction continues, with exploration now underway in Alaska's Bristol Bay and Chukchi Sea, and drilling platforms operating just off the coast of the ostensibly "protected" Arctic National Wildlife Refuge. [5] After the repair, the Valdez will even be given a new name, according to an Exxon executive, so that the ship can "start a new career." The natural world reels, but the business of business marches on.

Limits of Environmentalism

Because they are isolated, localized events, or because they are generalized, global ones, the calamities of industrialism erode the common conditions of life without necessarily posing any alternatives. Local communities affected by disasters are forced into rearguard, defensive struggles while having to survive under severely deteriorated conditions. Other communities, not directly affected, go on with normal life," holding out the faint hope that the oil, toxic Cloud, contaminated water, etc., won't drift in their direction.

The growing awareness of widening catastrophic conditions is insufficient to bring about a response as long as the structures of daily urban-industrial-commodity life 'are not Materially challenged. When they separately confront the various manifestations of the crisis, communities are left on the terrain of emergency response, demands for technological and regulatory reform, and, ultimately, "treatment" of an increasingly denuded world. That is to say, we remain on the terrain of a system that thrives on disaster, grasping at measures that may at best only achieve the same diminished stability in the social sphere that they do ecologically in places like Prince William Sound.

Roszak observes, "If modern society originally embraced industrialism with hope and pride, we seem to have little alternative at this advanced stage but to cling on with desperation." Of course, this is to cling to a sinking

ship, but cling we do. Mass society has taken its predictable revenge on those forced to inhabit it, eroding the inner strength and visionary impulses of human beings as ruinously as it has degraded and simplified the natural world. Disaster being a permanent condition of life, so quickly is one horror followed by the next, we have been disciplined to focus on the mediatized version of this season's industrial plague while all around us the hundred hydra heads flourish.

The image of the hydra occurred to me while driving my car to an event organized to show opposition to one of the hydra's local manifestations—the world's largest trash incinerator, which burns about a mile from where I live. Hearing the news of Prince William Sound, I saw the whole series of misfortunes originating in Prudhoe Bay (or rather, in some board room), and running through Prince William Sound down to me filling my gas tank in Detroit.

While I was gassing up to get to some modest attempt to oppose a piece of the monster, it had hiccuped and knocked off a whole section of the planet. Every day, in fact, it is the same concatenation of misery, a tidal wave of desolation and ruin that does not in any meaningful way, ultimately, serve the long-term interests of even those who administer it. It's exterminism in action: the hydra. In the myth, Heracles was at least able to cut off a head before two appeared in its place; we don't even have that small satisfaction before a hundred more appear.

The profound break necessary to contest this horror and create a liberatory, ecological society in its place clearly reveals the limitations of two currents of fragmented opposition to it, environmentalism and leftism. Environmentalism emerged as an ethical reassessment of humanity's relation to, and thus as a protest against, the wanton exploitation and destruction of the natural world. As a social movement it has sought to set aside and protect nature preserves, while trying to institutionalize, within modern capitalism and through the state, various safeguards and an ethic of responsibility toward the land.

Despite its appeal to a non-anthropocentric ethical perspective and its often vigorous and courageous battles to defend nature, environmentalism has lacked an acute critique of key social forces that propel ecological destruction: capitalism, empire and the state. Even where it has elaborated a partial critique of industrialism and mass society, it has generally failed to recognize the close connection between urban-industrialism and capital. Rather, it has attempted to reform the existing system by rationalizing and humanizing it.

This perspective is illustrated by a comment made by David Brower, an indefatigable environmental crusader who inspired many of the radical environmental activists today. Speaking to author John McPhee, Brower remarked, "Roughly ninety percent of the earth has felt man's hand already, sometimes brutally, sometimes gently. Now let's say, 'That's the limit.' We should go back over the ninety and not touch the remaining ten percent. We should go back, and do better, with ingenuity. Recycle things. Loop the system." (*Encounters with the Archdruid*, 1971). Even if Brower's figures are true (and even if the ten percent could remain unaffected by the activities in the other ninety), his statement provides little in the way of a critique of the world of the ninety percent and says nothing about the forces and institutions that determine "normal life" there.

As for those institutions, they have in many cases recognized the benefits of conservation and have preserved areas and natural objects, but they have always chosen to exploit such preserves when it was decided that the "benefits" outweighed the "costs." One cannot help but be reminded of the remark of an oil company executive, in the manner of a vampire, "The day you see gas lines in the Lower 48, [the Alaskan wildlife refuge] will open to us."

The environmental movement has been, from the beginning, one of retrenchment, temporary stalemate, defeat and retreat. As Brower comments, "All a conservation group can do is defer something. There's no such thing as a permanent victory. After we win a battle, the wilderness is still there, and still vulnerable. When a conservation group loses a battle, the wilderness is dead." The same holds true for communities defending themselves from corporations seeking to site landfills and toxic production facilities. In his painful and often extremely enlightening study of such communities, *Contaminated Communities: The Social and Psychological Impacts of Residential Toxic Exposure* (1988) Michael R. Edelstein describes a successful fight in Richton, Mississippi, to stop a nuclear waste repository. "Even with the project now abandoned," he writes, "there remains a feeling of 'perpetual jeopardy' in Richton resulting from the likelihood that so visible a site will attract some other hazardous waste proposal."

Lacking a perspective that challenges the capitalist order, environmentalists have seen their rhetoric captured and employed by the contaminating corporations and the state. The bureaucrats administering hazardous waste and garbage incinerators can be found parroting the environmental slogan "reduce, re-use, recycle," and conserva-

tion is touted as a patriotic duty. All such rhetoric on the part of the contaminators amounts to an-enormous scam, since capitalism—at least in its present configuration, which could not be abolished without a civil war—is based on extractive-exploitive industries such as mining and metals, petrochemicals, forest products, etc. No matter how assiduously the average person, recycles household waste, these industries will continue to operate, and there is a direct correlation between the economic well-being of these industries and destruction of the environment. Economic growth demands ecologic bust. If capitalist concerns do not grow, they will collapse and die. The privileged functionaries of such institutions have already clearly expressed their preference that everything else die first.

As for municipal recycling, that pet panacea of liberal environmentalism, not only is capitalism capable of rationalizing its production through such piecemeal reform, it will soon do so in North America once the waste management industry has created technical and economic infrastructures to make it profitable. (Until that time, recycling will, for the most part, fail, which is what is already happening in many municipalities that now find themselves sitting on tons of recyclable materials that can find no market.) In places such as Japan and Western Europe, where materials recycling can sometimes reach more than half of the municipal waste stream, widespread contamination continues. Factories, energy facilities, airports, mines and the rest remain. As it becomes profitable or necessary, recycling will certainly be institutionalized within the system, but it will not significantly alter the suicidal trajectory of a civilization based on urban-industrial-energy development and the production and circulation of commodities. [6]

Limitations of Leftism

Despite numerous insights into commodities and the market economy, the left historically has always embraced the industrial, energy-intensive system originally generated by private capitalism as a "progressive" force that would lay the basis for a free and abundant society. According to this schema, humanity has always lacked the technological basis for freedom that industrial capitalism, for all its negative aspects, would create. Once that basis was laid, a revolution would usher in communism (or a "post-scarcity" society) using many of the wonders of technology that were capitalism's "progressive" legacy. Presently, capitalism has allegedly outlived its progressive role and now functions as a brake on genuine development. Hence it is the role of the left to rationalize, modernize, and ultimately humanize the industrial environment through socialization, collectivization and participatory management of mass technics. In fact, in societies where the bourgeois class was incapable of creating the basic structures of capitalism—urban-industrial-energy development, mass production of consumer goods, mass communications, state centralization, etc.—the left, through national revolution and state-managed economies, fulfilled the historic mission of the bourgeoisie.

In the leftist model (shared by leninist and social democratic marxists, as well as by anarcho-syndicalists and even social ecologists), the real progressive promise of industrialization and mechanization is being thwarted by private capitalism and state socialism. But under the collective management of the workers, the industrial apparatus and the entire society can be administered safely and democratically. According to this view, present dangers and disasters do not flow from contradictions inherent in mass technics (a view considered to reflect the mistake of "technological determinism"), but rather from capitalist greed or bourgeois mismanagement—not from the "forces of production" (to use the marxist terminology) but from the separate "relations of production."

The left, blinded by a focus on what are seen as purely economic relations, challenges only the forms and not the material, cultural and subjective content of modern industrialism. It fails to examine the view—one it shares with bourgeois liberalism—that human freedom is based necessarily on a material plenitude of goods and services. Parroting their prophet, marxists argue that the "appropriation" by the workers of the "instruments of production" represents "the development of a totality of capacities in the individuals themselves."

Conquest of the "realm of necessity" (read: conquest of nature) will usher in the "realm of freedom." In this view, the material development of industrial society (the "productive forces") will make possible the abolition of the division of labor; "the domination of circumstances and chance over individuals" will be replaced "by the domination of individuals over chance and necessity." (Marx and Engels, *The German Ideology*). Mastery of nature by means of workers' councils and scientific management will put an end to oil spills. Thus, if mass technics confront

the workers as an alien power, it is because the apparatus is controlled by the capitalist ruling class, not because such technics are themselves uncontrollable.

This ideology, accompanied usually by fantasies of global computer networks and the complete automation of all onerous tasks (machines making machines making machines to strip-mine the coal and drill the oil and manufacture the plastics, etc.), cannot understand either the necessity for strict and vast compartmentalization of tasks and expertise, or the resulting social opacity and stratification and the impossibility of making coherent decisions in such a context. Unforeseen consequences, be they local or global, social or ecological, are discounted along with the inevitable errors, miscalculations, and disasters. Technological decisions implying massive intervention into nature are treated as mere logic problems or technical puzzles which workers can solve through their computer networks.

Such a view, rooted in the nineteenth century technological and scientific optimism that the workers' movement shared with the bourgeoisie, does not recognize the matrix of forces that has now come to characterize modern civilization—the convergence of commodity relations, mass communications, urbanization and mass technics, along with the rise of interlocking, rival nuclear-cybernetic states into a global megamachine. Technology is not an isolated project, or even an accumulation of technical knowledge, that is determined by a somehow separate and more fundamental sphere of "social relations." Mass technics have become, in the words of Langdon Winner, "structures whose conditions of operation demand the restructuring of their environments" (*Autonomous Technology*, 1977), and thus of the very social relations that brought them about.

Mass technics—a product of earlier forms and archaic hierarchies—have now outgrown the conditions that engendered them, taking on an autonomous life (though overlapping with and never completely nullifying these earlier forms). They furnish, or have become, a kind of total environment and social system, both in their general and individual, subjective aspects. For the most part, the left never grasped Marx's acute insight that as human beings express their lives, so they themselves are. When the "means of production" are in actuality interlocking elements of a dangerously complex, interdependent global system, made up not only of technological apparatus and human operatives as working parts in that apparatus, but of forms of culture and communication and even the landscape itself, it makes no sense to speak of "relations of production" as a separate sphere.

In such a mechanized pyramid, in which instrumental relations and social relations are one and the same, accidents are endemic. No risk analysis can predict or avoid them all, or their consequences, which will become increasingly great and far-reaching. Workers councils will be no more able to avert accidents than the regulatory reforms proposed by liberal environmentalists and the social-democratic left, unless their central task is to begin immediately to dismantle the machine altogether. [7]

The left also fails to recognize what is in a sense a deeper problem for those desiring revolutionary change, that of the cultural context and content of mass society—the addiction to capitalist-defined "comforts" and a vision of material plenitude that are so destructive ecologically. The result is an incapacity to confront not just the ruling class, but the grid itself—on the land, in society, in the character of each person—of mass technics, mass mobility, mass pseudo-communications, mass energy-use, mass consumption of mass-produced goods.

As Jacques Ellul writes in *The Technological System* (1980), "It is the technological coherence that now makes up the social coherence…Technology is in itself not only a means, but a universe of means—in the original sense of Universum: both exclusive and total." This universe degrades and colonizes the social and natural world, making their dwindling vestiges ever-more perilously dependent on the technological environment that has supplanted them. The ecological implications are evident. As Ellul argues, "Technology can become an environment only if the old environment stops being one.

But that implies destructuring it as an environment and exploiting it to such an extreme that nothing is left of it." We are obviously reaching that point, as capital begins to pose its ultimate technology, bioengineering and the illusion of total biological control, as the only solution to the ecological crisis it has created. Thus, the important insights that come from a class analysis are incomplete. It won't be enough to get rid of the rulers who have turned the earth into a company town; a way of life must end and an entirely new, post-industrial culture must also emerge.

4. Revolution or Death: Against the Megamachine

A new kind of thinking presently haunts the despair and bad faith that now rule the world. It recognizes that a whole order must be abolished, that we must retrace our steps, that the machine must stop once and for all, if we are to avoid going over an abyss. Yet this vision for the most part remains hidden; the necessary shift in thinking and the practical strategies that it suggests have not generally occurred even in many of those human communities most adversely affected by growing social and ecological degradation.

Michael Edelstein's discussion of the impact of contamination on communities takes up this problem. Edelstein has studied several communities reeling from the consequences of contamination or in the process of trying to stop industrial projects that are proposed, and describes how these experiences can dramatically radicalize people, create the basis for communities of resistance (if only temporarily), and ultimately, inspire people to begin to "challenge core assumptions of the overall society." Any doubts about the far-reaching radical, even revolutionary, potential of the anti-toxics and anti-development movements will be dispelled by this book.

Nevertheless, as Edelstein points out, it is the failure to recognize and confront the context and social content of mass contamination that finally leaves these communities powerless to halt it. Society as a whole engages in "denial and rationalization" in thinking that a single accident or problem can be resolved in isolation from the total fabric, in thinking that the mass urban-industrial society can continue to operate without contamination and ecological destruction. "We no longer deny the existence of pollution," he writes; "instead we adopt the engineering fallacy—that pollution simply needs to be 'cleaned up.' Landfills or other technological systems can be designed to securely contain hazards; pollution is merely a technological problem waiting to be solved. This is societal denial!"

Without an authentically alternative perspective, Edelstein argues, even the victims of direct contamination "are left to deal with toxic exposure in ways that force them to continue participating in the system that caused the pollution. Toxic activists seek 'cleanup' and other engineering solutions," pressing for health testing and compensation for victims. While Edelstein does not discount the necessity for such defensive strategies, he maintains that they nevertheless "serve to institutionalize and legitimate as a problem what might otherwise be viewed as a fundamental crisis and, thus, a challenge to our modern, industrial way of life."

As for people not directly affected, even if they sympathize with toxics victims and express a strong desire (in polls) to defend the environment, they do not recognize their own personal participation in the machine or what will be required to make changes. "Their lives are so compartmentalized that they live a lifestyle that supports the pollution habit, without even seeing the contradiction." The life-or-death biological crisis facing the earth becomes just one more abstract issue rather than a life-or-death crisis for the individual and community that demands immediate and radical response. To paraphrase an old adage, everyone talks about the crisis, but no one does anything about it. The masses, a product of the mass society they have produced, continue on in their domesticated lives, suiciding themselves, future generations, and the land.

Even more militant responses are limited by the uncanny ability of the system to overcome and grow from its crises. After the Exxon spill, for example, thousands of credit cards were returned and gas stations felt the impact of a consumer boycott, The petrochemical industry, of course, continued operating. For a brief moment, Exxon served as the media "bad guy" and contributed a small share of its business to other oil companies, while managing to be consoled by its other sources of profit—plastics, paints, textiles, detergents, and services to the pulp and paper industry. Boycotts, demonstrations and other forms of militant response focus on some of the real culprits who benefit from ecocide, yet fall short of an adequate challenge to the system as a whole. On the other hand, to call for a boycott of all oil and gas as a strategy is the same as calling for an immediate mass strike against industrialism. It is provocative, but few are listening; even those who are listening are also trapped in the machinery, burning gas to stay alive.

Halt Production, Destroy the Economy

Such a commentary should not be interpreted as a call to abandon practical struggles in local communities and workplaces or around specific problems. For many, these battles are desperate measures, and when the house is on fire, one tends to save whatever is in reach. It would be a grave error to simply give up such struggles on the basis of

a more abstract image of a larger totality, for it is in such experiences where many people learn to fight and where the possibility of a larger perspective begins to present itself. We are also talking about people's communities and their deepest loyalties, in any case.

But now that industrial capitalism is fast burning down the entire ecosphere, the problem has become more than ever how to link local and partial struggles to a larger vision that can assert itself as a movement and a cultural transformation carried out by millions of people. We must begin to talk openly and defiantly of the mass strike and revolutionary uprising that it will take to stop the megamachine from grinding up the planet. We must begin to consider what it will mean to put ourselves out of work, to halt production and destroy the economy, creating a free society based on social and ecological cooperation in place of the work pyramid.

Those who might tremble at the idea of disemploying the working class and dismantling mass technics and the economy of industrial dependence should know that this prospect was raised by revolutionaries a century ago. Kropotkin, for example, took up the question of the fate of thousands of workers involved in producing luxury and export commodities during a revolutionary period, when there would suddenly be no use and no market for them. To tell the laborers to become the masters of such factories "would be a cruel mockery," Kropotkin wrote. Instead, facing the inevitable breakdown of the system, workers must learn to provide themselves with the basic necessities of life, food and shelter. Such facilities would simply be abandoned. [8] When petrochemical workers and the rest of us working at meaningless jobs to prop up urban-industrialism confront our daily activities, won't our choices be the same?

The idea of a revolution against urban-industrialism may seem far-fetched today. But in the future this idea may prove to have come so late as to be insufficient and not radical enough, given the conditions in which we find ourselves. While the question of violence remains an open one, no image of revolutionary uprisings of the past will serve us well in articulating the idea. Yet they may indicate to us what they proved to revolutionaries of the past, that a population that at one moment appears defeated and quiescent can rapidly transform itself and create sweeping changes. As Rudolph Bahro has written in his book Socialism and Survival (1982), "The tendency is growing, and it is a tendency inherent in every human being, to entrust ourselves to an extreme alternative, however uncertain—because there is nothing left to do. The decision can suddenly take hold of millions—tomorrow or the day after—and expand the horizon of political possibility overnight."

Such a process would not be motivated by a vision of negation only, but rather affirms the idea of restoration of human community and the integrity of the land organism, affirms a natural world and a social world renewed unto themselves and reconciled to one another. The critical luddite sensibility that underlies it would make society as a whole a kind of philosophical school, through which deconstructing or unbuilding the megamachine—on the land and in our social relations—a form of inquiry making up its foremost spiritual, critical and practical project. By exploring this vision, we can perhaps begin to break out of our conditioning and domestication and create an entirely new life that combines the deep wisdom of primal animism with humility that the harsh lessons of history and modernity have brought.

Last spring, a fisherman told a journalist that when he was done working on the Exxon fiasco, he would load his boat and take his family away. When asked where, he replied, "Someplace where the water's still clean." One can only wish him luck. But like the birds that once more headed south through Prince William Sound only to face poisoning again, we've all run out of places to hide. If the anti-industrial perspective now seems too radical, too visionary, too impractical, future generations, if there are any, will wonder why it took so much time and anguish to recognize it and to make it a practical reality. It remains as yet only a weak approximation of the road that lies ahead of us if we are to save some remnant of ourselves and this planet from the catastrophe whose engines were set in motion long ago. Let us begin to throw off our chains and win back the world while there is still something left of it to win.

—George Bradford
September 1989

Notes

1. For an excellent essay on the Pacific Northwest spill, see Mikal Jakubal's "With Enough Toothbrushes," in *Live Wild or Die* No. 1 (available through FE book service).

2. See "What's Behind the Spills," *Greenpeace Magazine*, June 1989, and "The Spills and Spoils of Big Oil," by John Greely, *The Nation*, May 29, 1989.

3. For a chilling eyewitness account of the spill's effects, see "The Dead Zone: Disaster in Alaska," by George Michaels, in the September 1989 issue of *The Animals' Agenda*.

4. *The New York Times*, April 23 and September 10, 1989; "Exxon Reneges on Cleanup," *The Guardian*, August 30, 1989. In one report on the disaster originally done for the *Chicago Reader*, Jill C. Kunka writes, "What about the waste from the cleanup? Waste disposal may be the climax of Exxon's cleanup nightmare. According to the *Anchorage Daily News*, one ton of spilled crude turns into 10 tons of toxic garbage—bags of oily gravel, mountains of synthetic absorbent booms and pads, discarded coveralls and the assorted refuse of 10,000 cleanup workers. Service barges are collecting about 250 tons of waste per day. Much of this will be burned; the rest will be sent to hazardous-waste landfills, probably in Oregon. A friend from Detroit also reported after a trip last summer to' Alaska that several temporary incinerators were working around the clock in Valdez harbor. As Kunka writes, "With almost any environmental cleanup…the problem just gets moved around." "Report from Alaska," *Detroit Metro Times*, September 27-October 3, 1989.

5. In his 1987 book *The Toxic Cloud*, Michael Brown reports that one exploratory drillship alone "can produce as much smog as twenty-five thousand cars, each traveling eighteen thousand miles."

6. The capitalist state has previously implemented recycling as public policy in time of war to gather materials at home in order to more efficiently blow them to smithereens overseas.

7. Tara Jones quotes C. Perrow's *Natural Accidents: Living with High-Risk Technology* (1984): "Systems that transform explosive or toxic raw materials or that exist in hostile environments (this could stand as a basic description of industrialism itself) appear to require designs that entail a great many interactions which are not visible and in expected production sequence. Since nothing is perfect—neither designs, equipment, operating procedures, materials and supplies, nor the environment—there will be failures…These accidents then are caused initially by component failures, but become accidents rather than incidents because of the nature of the system itself; they are system accidents, and are inevitable, or 'normal' for these systems." While this passage brings to mind dramatic, local accidents like Bhopal or Chernobyl, we must also consider the systemic failure on an ecospheric scale as the result of industrialism as a totality on the living system of the earth.

8. See "Revolution and Famine," in *Act for Yourselves*, Freedom Press. Presumably, many anarcho-syndicalist defenders of industrialism will object, furnishing quotes from Kropotkin in which the anarchist prince reveals the optimism toward technology so common in his time. There will always be those who insist on overlooking what is most visionary and far-seeing in writers like Kropotkin while clinging to what has not withstood the test of historical experience. The myth of progress has become the real "dead weight of the past" weighing like a nightmare on the imagination of the present.

First Interstate Tower fire, Los Angeles, May, 1989 / Wikimedia Commons

Sidebar: "Consider the situation. One hundred and ten alarms were sounding; key indicators were inaccessible; repair-order tags covered the warning lights of nearby controls; the data print-out on the computer was running behind (eventually by an hour and a half); key indicators malfunctioned; the room was filling with experts and several pieces of equipment were out of service or suddenly inoperative."

—C. Perrow, describing the 1979 partial meltdown of the Three Mile Island nuclear reactor, in *Normal Accidents: Living with High-risk Technology* (Basic Books, 1984).

Above: The perfect symbol of all megatechnics, a skyscraper burns out of control in Los Angeles, spring, 1989. Thirty people were injured and one killed.

George Bradford (David Watson)
Revolution Against the Megamachine
Stopping the Industrial Hydra
1990

https://www.fifthestate.org/archive/333-winter-1990/stopping-the-industrial-hydra
Fifth Estate #333, Winter, 1990

fifthestate.anarchistlibraries.net