SCIENCE FOR THE PEOPLE

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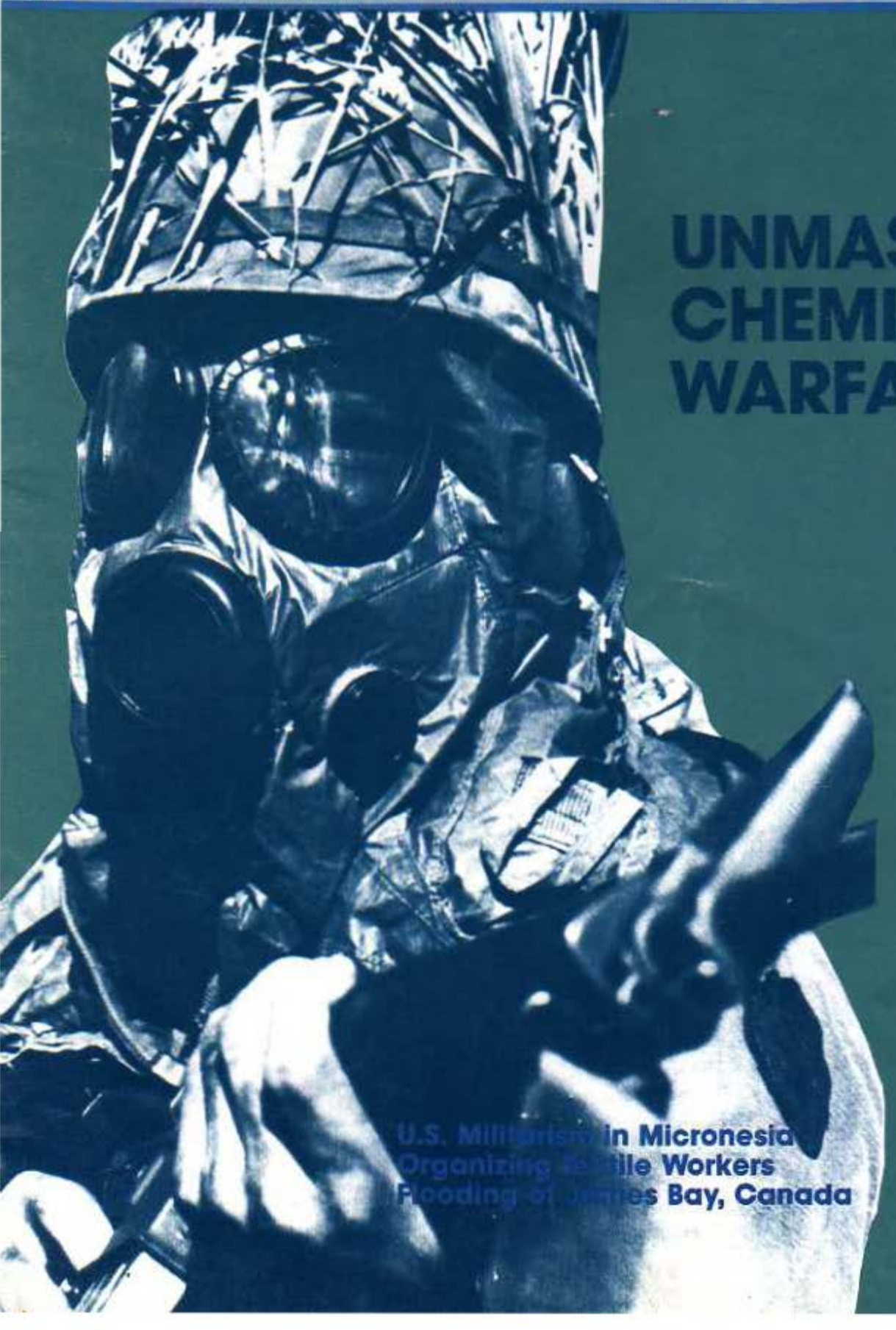

UNMASKING CHEMICAL WARFARE

U.S. Militarism in Micronesia
Organizing Textile Workers
Flooding of James Bay, Canada

letters

SPACE FOR CIVILIANS?

Dear SftP:

I recently read the article, "The Military History of the Space Shuttle," by Jack Manno [SftP, Vol. 15, No. 5]. While I found the article interesting and informative, I cannot agree that "protesting the militarization of space while still clinging to fantasies of space colonies, mass space flight, and space industry is an inevitably self-defeating contradiction."

With a low civilian demand for flights on the Space Shuttle the success of the Shuttle *will* depend on military utilization. But the militarization of space will not come to a halt because civilians turn their backs on space activities. In fact, the military would probably welcome such an attitude in civilians.

Ideas of severely curtailing or eliminating a military presence in space seem quite unrealistic, but I think the promotion of civilian space activities can limit at least the pace of military space development. A high level of civilian demand for Shuttle use would put increased pressure on the Congress to limit military use of the Shuttle and would increase military worries about intelligence and security risks—too many nosy civilians crawling around too close to military payloads. The Defense Department is already having second thoughts about the security and reliability of the Shuttle [*Aviation Week and Space Technology,* March 5, 1984].

Further, Manno notes many potential civilian benefits which might be realized with advanced space systems. However, he seems to feel we should turn our backs on the development of these systems because they may help the military. Using the same reasoning, it could be argued that we should stop all development of most human activities—medical, agricultural, etc.—because, although such developments may improve the quality of life for civilians, they may also benefit the military.

By turning away from the promotion of civilian space activities peace activists will, by default, allow the military relative freedom to pursue its goals in space and will also help to cut back on work on many space projects which, *if developed responsibly,* could benefit civilians around the world.

Bernard Ganeff
Tucson, AZ

Manno Responds:

I agree that some in the military would prefer to keep current space activities separate from the civilian-tainted shuttle. However, my article was referring to the "advanced" space systems that have teased the military imagination for thirty-five years with the promise of one-day providing true global superiority. Such systems will only come into being when, and if, the technologies of earth-orbital transport, construction and mobility are mastered. The military on its own cannot win the political support nor the money necessary to build a space transportation infrastructure for its own purposes. Popular support for space activities is required. The highly-touted, and highly doubtful, civilian benefits to be derived from space serve the purpose of wooing that popular support. But I believe the support is "soft," and can be undermined through the creative opposition of peace activists, ecologists and other progressives.

Bernard Ganeff suggests my position impedes human progress. I maintain that the grandiose schemes frequently mentioned for the future in space — solar collecting satellites, space colonies, space factories and others — have little to do with human progress and much to do with military ambition, skewed economic priorities and befuddled mythologies. They are supported not for their scientific or economic potential as much as their ideological impact. They serve as convenient alternatives to ecologically conscientious paths to development. One can either deal with the fact that the earth is bounded and its resources finite, or we can pretend that space is an infinite supply of energy and raw materials. If we look at what is realistic and desirable in space we come up with nothing like what the pro-space dreamers have in mind. If they happen, solar collecting satellites, space-based prospecting, and space manufacture will further concentrate power, energy and information in the hands of the wealthy while being largely irrelevant to the needs of the poor majority of the planet's population. They can be opposed on their own grounds. It is an added advantage that such opposition might also obstruct military space plans.

Good space science can be done without reference to such things. Communications satellites, the one area of space activity with proven commercial viability, can progress without them. A case can be made for an internationally controlled cooperative space program based on global development plans organized for the benefit of all. Such space programs have been articulated by the United Nations Committee on the Peaceful Uses of Outer Space at UNISPACE and elsewhere. When and if the U.S. places its technological expertise at the service of such an endeavor then I will happily grant my support. In the meantime, I think it is in the planet's interest for peace activists, environmentalists, feminists and all progressives to oppose and undermine the current direction of US space activity — both military and civilian.

EDITORIAL PROGRAM

Dear SftP:

In their review of *The Second Sickness* [SftP, January/February 1984], Himmelstein and Woolhandler present an excellent editorial program for your magazine as a whole:

- "analyze the political, economic and social origins of . . . and the distortions and irrationality engendered in . . . by capitalism."
- "present fascinating studies of specific problems in . . ."
- "explore prospects for resolving the contradictions of capitalist . . ."
- "describe the enormous advances made possible [by eliminating] the barriers to . . . inherent in capitalism . . ."
- "critique reformist strategies, such as . . . which leave intact both the basic structure of capitalist . . . and the contradictions which underly it."
- "cite areas of work which [you view as presenting] progressive possibilities . . ."

Marie Carey
Chatham, MA

SCIENCE FOR THE PEOPLE

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FEATURES:

Cover: U.S. Army Photo

DEPARTMENTS:

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news notes

EDB : Tip of the Chemical Iceberg

"How could intelligent beings seek to control a few unwanted species by a method that contaminated the entire environment and brought the threat of disease and death even to their own kind?" asked Rachel Carson over 20 years ago in her book *Silent Spring*. She was writing at that time about DDT, but she could just as easily have been writing the same question today about EDB.

Critics of the U.S. agriculture industry are not surprised by the recent crisis over the suspected carcinogenic pesticide ethylene dibromide (EDB). "EDB contaminated food, when viewed only as a product, is a deception," charged New England Food Cooperative Organization (NEFCO) marketing manager Michael Rozyne, in testimony before the Massachusetts Department of Public Health. "Food found to contain more than 1 [part per billion] EDB is the end result of a process of farming, food processing and food distribution that relies on quick-fix solutions to solve complex ecological problems like insect or fungus infestation. The problem is systemic to our whole agricultural system."

The EDB problem is only the tip of the chemical iceberg. As a recent Boston *Globe* article concluded, "Bad as EDB is feared to be, it is actually one of the few such chemicals that have been tested." U.S. pesticide manufacturers have the advantage of time on their side as they develop new markets for their products: a recent University of California study has shown that the U.S. Environmental Protection Agency (EPA) is so far behind in its testing program that only 64% of the 30,000 pesticides currently on the market have been tested for their long-term environmental and epidemiological effects. It may be years before many widely-used pesticides will be checked for toxicity. Because of this, it is human beings who have become the laboratory animals in the ongoing experiments being done by U.S. chemical corporations.

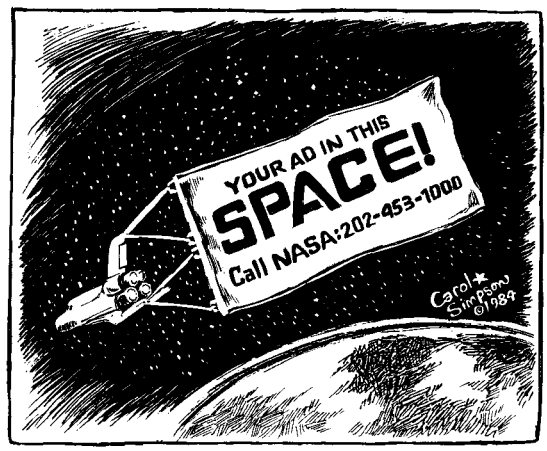
A brief history lesson demonstrates that EDB is just another chapter in the continuing saga of spectacular corporate quick-fix failures that have resulted in the contamination of the environment. In the 1960s, it was DDT that was discovered to have far-reaching detrimental effects on the food chain. In the 1970s, toxic wastes began receiving national attention. And the 1980s brings EDB. NEFCO's Rozyne charged, "Focusing on the end product [rather than the systemic problem] makes it seem reasonable to substitute one quick-fix solution for another: Methyl bromide for EDB until methyl bromide is banned; phostoxin for methyl bromide until phostoxin is banned." And then there is the latest "alternative" being enthusiastically pushed by the U.S. Department of Agriculture: irradiating food to kill insects.

Rozyne's grim prediction about future crises has already been confirmed. In a small box on the back page of a recent Boston Globe appeared the following item:

WASHINGTON – Initial laboratory results on methyl bromide, now being used as a substitute for the cancer causing EDB to kill insects on milling equipment and citrus fruit, indicate that it, too, is a powerful carcinogen, according to [EPA] officials. . . .

As of this writing, the EPA has not issued any precautionary warnings about the use of methyl bromide. And so the next chapter of the toxic chemical crisis begins.

Capitalism's New Frontier



Carol/Simpson

Having trouble making enough profits here on earth? If so, you might be interested in joining the select few who subscribe to a new newsletter called *Space Business News*. In it you can find such important tidbits as the fact that the investment firm Kidder, Peabody and Co. is on the lookout for space business projects to invest in, or that President Reagan is planning another meeting with space-business officials.

According to their promotional literature, such information can be of use to you whether you are a huge conglomerate, or even a small entrepreneur. Readers of *SftP* may remember Jack Manno's warning about the military agenda in space hidden behind the cover of commercialization ("Military History of the Space Shuttle," *SftP* Vol. 15, No.5.) With NASA enticing business onto shuttle flights at artificially-low prices, it is ironic to find in *Space Business News* the facade of free enterprise at work. It is also dismaying to see the familiar sign of capitalism so readily poised to exploit this "ultimate business frontier." Hopefully this time around, nations of the world can set some guidelines regarding peaceful access to and uses of space.

Activists Fight TMI Restart

For people in the Harrisburg area, the Three Mile Island (TMI) accident – which began on March 28, 1979 – continues. Krypton venting, tritium in the water supply, and periodic (and unexplained) alerts are all part of the TMI legacy. While the media issues "nuclear is dead" post mortems, Central Pennsylvania residents must contend with born-again nuclearism; the NRC and GPU (General Public Utilities) are talking about restarting the "undamaged" Unit 1, perhaps as early as June. Resident Randy King echoes the judgement of many industry watchers: "TMI obviously has become their baby now. In a lot of ways, TMI is the make-it or break-it point for the nuclear industry."

The restart of Unit 1 is troubling to area residents not only because it flies in the face of a 1982 referendum opposing restart and not only because of the evidence that the reactor is handicapped by an embrittled reactor vessel and damaged steam generator tubes (a design problem found in similar plants). The restart possibility is disturbing in the extreme because it would be managed by confessed corporate criminals. In February, Metropolitan Edison (and its parent GPU) negotiated a plea agreement which ended federal criminal proceedings against it on charges of falsification of records and destruction of safety data; the utility pleaded guilty to one charge and no contest to six others. What is so alarming is that the NRC commissioners decided in a split 3-2 vote that "questions about management integrity at Three Mile Island do not have to be resolved before the undamaged unit 1 reactor can be restarted."

The threat of the NRC carte blanche for TMI restart is accompanied by the following predicaments: 1. clean-up operations at TMI are approaching the critical point (possibly this summer) when the reactor head will be lifted, putting community and workers at great risk; 2. EPA radiation monitors (the closest thing to independent monitors in the area) may be withdrawn because of EPA claims that nothing unusual is going at TMI and that too much money has been poured into the Harrisburg area; 3. whistleblowers continue to find themselves in jeopardy for divulging information about shoddy and dangerous clean-up activities; 4. there have not been any systematic epidemiological or ecological studies, and citizen and health practitioners' reports of possible health effects are dismissed as hysterical or anectodal.

Given what they're up against and what they've been through, TMI area activists have persisted remarkably in their efforts to fight restart, insure safe clean-up, protect whistleblowers, and work toward reliable health studies. That the NRC will overlook falsification of records and unannounced radiation venting and will allow a criminal and incompetent mnagement to redeem a blundering industry is a clear and present danger to all of us. Area activists urge peopl to spread the word that the accident continues and to press their respective state officials to insist to Pa. Governor Thornburgh and the NRC Commissioners that a TMI restart violates community and state rights to protect public health and safety.

For further information contact: Three Mile Island Alert, 315 Peffer St., Harrisburg, Pa., 17102, tele: 717-233-3072. Also, TMI-PIRC (Public Interest Resource Center), 1037 Maclay St., Harrisburg, Pa., tele: 717-233-4241. Both groups need financial support and would appreciate copies of any letters (to newspapers, public officials) which you write.

–Lin Nelson

Notice to Subscribers

Due to a computer error, subscribers with an expiration date of 12/84 received renewal letters in the recent cycle, six months before they were due. We apologize for the mix up, and ask these subscribers to kindly ignore the notices. We have corrected our records, so there should be no further problems.

AMA Journal: Under Thumb of Drug Advertisers?

The *Chicago Sun-Times* reported recently that the *Journal of the American Medical Association (JAMA)* published an article to appease a major drug firm. The journal gave in to the demands of Pfizer Laboratories of New York after that company pulled $250,000 in ads, and threatened to remove $2 million more because it believed an article favored a competitor's drug.

The journal's news editor, Dr. George Lundberg, denied that the later article was published to placate Pfizer, manufacturer of a heart medicine called *nifedipine* or *Procardia* (the brand name). Lundberg said the second article was meant primarily to provide an update on developments in such drugs, known as calcium blockers. He said it also compensated for a lack of balance in the earlier article.

Pfizer said in a statement that the first article "was biased against nifedipine. Pfizer indicated to *JAMA* that in the interest of balance it wanted an opportunity to present data by a research physician who had done clinical work with Procardia." The firm denied it withdrew its ads because of the first article.

The controversy began with an April 9, 1982, article in the AMA journal concerning the newly approved calcium blockers, used to treat angina. Drug companies at the time were jockeying for market position with the new drugs, which they estimated could help as many as four million heart patients. A favorable article in a journal such as *JAMA*, which goes to more than half the nation's physicians, influences doctors' decisions about which drugs to prescribe.

Pfizer apparently felt the article emphasized claims made for a competing calcium blocker made by G.D. Searle of suburban Skokie, Ill., and Knoll Pharmaceutical Co. of Whippany, N.J., according to memos circulated at the AMA.

On May 21, 1982, Pfizer Laboratories pulled its ads from the journal. On September 17 the journal published "legitimate, new information on calcium blockers." Three weeks later the journal resumed the Pfizer ads.

"STRICTLY ANTI-HUMAN" CHEMICAL AND BIOLOGICAL WARFARE

by Robert Ruttman

Chemical and biological warfare (CBW) is, at this juncture, the only type of warfare devoted solely to the massive destruction of all forms of life, with little or no effect on property, physical structures or the instruments of war. For this reason, the status of persistent efforts to ban all forms of chemical and biological warfare continues to be of importance, as does continued flow of reports on the use of these weapons. In Afghanistan and Southeast Asia, the United States has charged that the Soviet Union is making use of biological warfare with mycotoxins ("Yellow Rain") and chemical warfare (CW) with nerve gases; conversely Cuba has blamed the outbreak of a massive epidemic of Dengue II hemorrhagic fever, not normally present in the Caribbean, on the CIA. Most recently, Iran has charged Iraq with the use of chemical weapons. These reports serve to remind us of the precarious situation in which we all exist and of the ever present threat of this particularly heinous form of anti-human torture and destruction. These recent reports also provide compelling reasons for a review of the situation and renewed efforts to achieve a total ban of use, deployment, and development of chemical and biological weapons.

As a result of the emergence of a new CW "strategy," and the general disinclination of the Reagan administration to press for a treaty banning chemical warfare, a decade of progress towards chemical disarmament has been halted. The following are a few points of central importance in the current U.S. situation.

- The U.S. is in the process of returning to a vigorous program of chemical rearmament involving the integration of binary nerve gas weapons into the normal armaments of forward field commanders; whether this move will be accepted by NATO remains uncertain. If not, even the utility of the weapons will be seriously compromised.
- A new and more dangerous development in biological warfare research is presaged by the entrance of the Department of Defense (DOD) into the recombinant DNA field. This was signalled by approval by the National Institutes of Health of an Army proposal to clone the gene for Shigella dysentery toxin. Recombinant DNA work of this type now occupies a major part of the DOD biological research budget. If the past is any guide, these research projects will continue to be classified or concealed. The key concern is that cloning can be used to produce gene products (antibodies, toxins, antitoxins) representing variants of existing viruses or bacteria. Secret possession of both the infectious or toxic agent and the antidote provide a unique military advantage.
- For many reasons, including historic rejection of CBW, its limited tactical or strategic value in Europe, the unlikelihood of being able to station new CBW weapons outside the U.S. and the escalatory nature of CW weapons, new CBW armaments are unlikely to play any role in a big power confrontation. Thus, the only likely place to apply these weapons is against underdeveloped countries as anti-guerilla, anti-personnel and genocidal weapons.
- In the unlikely event of resort to chemical warfare in developed nations, any initial or continuing advantage over the enemy must cause consideration of at least a tactical nuclear response. The expectation of limiting the resulting nuclear exchange can only be small.
- Because of the relatively inexpensive nature of nerve gas production (or toxin production) and the relatively simple technology involved, CBW armament is easily accessible to non-nuclear powers. Application of CBW to such powers can only invite extended retaliation against big power population centers by any means available; the comparative results could easily favor the non-nuclear Third World nations.

These considerations make the proposals and programs of chemical and biological warfare seem to be pointless and counterproductive. No compelling doctrine, no favorable outcome, dubious deterrent value,

Bob Ruttman teaches in the Department of Animal Biology at the University of Pennsylvania.

general rejection on technological and moral grounds obscure any justification for continuance of the present CBW armament programs. Yet, continue they will until stopped by humanitarian political action. As long as they do continue, they pose an additional horrifying threat to the survival of humankind.

Chemical Warfare: History to World War II

Chemical warfare seems to have originated during the Hellenic Wars with the use of chemical smokes (sulfur, pitch-blende). No organized development of this form of warfare is discernable until the 20th century, when in preparation for World War I, nations began to stockpile the first relatively crude chemical weapons. French forces were the first to use these weapons, in the form of tear gas grenades in 1914; the Germans, however, ushered in their use on a massive scale with artillery attacks on Eastern and Western fronts employing irritant smokes (sternutators). These were unsuccessful, but they were followed by a devastating attack at Ypres on April 22, 1915 employing tons of chlorine gas and literally depopulating the allied line for a depth of several miles, producing 15,000 casualties and 5,000 deaths. Next the Germans introduced a "true" CW agent: mustard gas (see Table 1) which represented a giant step towards a new and unique form of warfare. Mustard gas, an odorless liquid which penetrates cloth and skin and which vaporizes sufficiently to affect the lungs, was the first pre-designed, highly toxic agent with improved properties for distribution and penetration. Phosgene, chlorine and mustard gas are credited with approximately 1.3 million casualties (20%) in World War I, 100,000 deaths and 100,000 prolonged incapacitations.

Although gas did cause many casualties, it produced no strategic advantages and little tactical success to compensate for its uncontrollable and unpredictable nature. In addition, there was a universal revulsion against the use of gas, even within the military, resulting perhaps from the "non-military appearance" of men in gas masks and the horror of soldiers retching, coughing and dying in paroxysmal convulsions. All these things placed chemical weapons beyond the pale of "reasonable conduct" of warfare and led to increased calls for its control and elimination. Such pressures led to the subsequent effort at Geneva in 1925 to implement the Hague Conventions of 1899 and 1907 prohibiting noxious gases and poisons. The Geneva Protocol of 1925 called for a total ban on all chemical weapons and was signed by all participating nations, but it was never ratified into treaty form by the United States Government. In reality, because all countries reserved the right of response in kind, the Geneva Protocol was operationally a no first use ban. No further progress on CBW limitation was to be made until two decades after World War II.

Meanwhile, despite the revulsion against chemical weapons, the major powers proceeded in their quest for better chemical and biological weapons. In the chemical field, the most important development following World War I was the discovery by the Germans in the late 1930s of a new class of warfare agents, the so-called nerve gases, Tabun, Sarin and Soman. The characteristics of these newer agents are summarized in Table 1 and compared to the older agents of World War I. It can be seen that the newer agents are far more lethal than their World War I counterparts, and up to 1000 times more toxic. But aside from their potency, the nerve gases represented a qualitative leap in strategic and tactical utility as well. The reasons for this are severalfold: the nerve gases act very much faster than the mustards, incapacitating the victim in the order of minutes and, where the dosage is high enough, produce fatalities in less than one hour. Unless an antidote such as atropine is applied almost immediately, the damage is irreversible. These agents can be distributed by the same munitions used for high explosives, as well as by aerosol cloud; their presence can be short-lived, so that the attack target can be occupied in short order, particularly by an attacking force protected with impermeable clothing and chemical antidotes. On the other hand, some of these nerve agents (such as VX) can also be relatively long lasting, denying the target area to the enemy for some time. The nerve gases act by a highly specific, biological attack (illustrated in Figure I). The irreversible inactivation of the specific attack on the enzyme which regulates muscle contraction (acetylcholinesterase) is a lethal event.

The Geneva Protocol of 1925 called for a total ban on all chemical weapons and was signed by all participating nations, but it was never ratified into treaty form by the United States government.

The full significance of nerve gas armament, in the context of armaments overkill, is revealed by the fact that the United States stockpile *alone* contains 1×10^{13} lethal doses, or enough to kill every human and every animal on this planet several hundred times over, making nerve warfare a threat similar to nuclear warfare. A neglected aspect of both mustard and nerve gases is the long range biological effects. By virtue of their reactivity, the mustards combine with the DNA of the living cell; as such they can be mutagenic, teratogenic and carcinogenic. These effects have been demonstrated in laboratory animals. Since nerve gases are also chemically reactive with DNA, they may be expected to have the same potentiality but modified by the lower doses required for toxicity.

TABLE 1 — CHEMICAL WARFARE AGENTS

NAME (Form)	EFFECTS	DISCOVERY/ FIRST USE	RELATIVE TOXICITY	STOCKPILE REMARKS
Phosgene (CG) (COCl—gas)	Lethal: cyanosis, asphyxia (delayed)	Germany, 1915	1	80% WWI gas casualties
Mustard Gas (HD) (Vapor, liquid)	Lethal or serious: blistering, blinding lung injury (delayed)	Germany, 1917	5	20% WWI gas casualties U.S.—10 tons
			USSR-? tons	
Tabun (GA) (liquid, aerosol)	Very lethal: nausea, vomiting, uncontrolled	Germany, 1937	300	Volatile nerve gas
Sarin (GB) (liquid, aerosol)	excretion, coma, convulsions, asphyxiation.	Germany, 1938	600	Volatile nerve gas
Soman (GD) (liquid, aerosol)	(rapid action) nonpersistent	Germany, 1944	600	Volatile nerve gas
VX (liquid, aerosol)	same as above, but persistent	U.K., U.S., 1950	3000	
Adamsite (DM) (aerosol)	Irritant Sternutator (rapid)	U.K., U.S., 1918	<1	
Tear Gas (CN) (aerosol)	Lachrymatory (rapid)	U.S., 1918	<1	
—(BZ) (aerosol)	Psychochemical incapacitant (rapid)	U.S., 1950	<1	U.S.—10 tons

Biological Warfare Plays Catch-Up

At the end of World War II, the United States, the United Kingdom, and the Soviet Union were all aware of the potential uses of nerve gas and had begun to move towards further development and production of these chemical weapons. But even before then, between World War I and World War II, the vast potentialities of biological warfare had begun to attract serious attention. Actually, the history of biological warfare is at least as old as that of chemical warfare, beginning originally with the use of poisonous plants and natural extracts to contaminate water supplies. Later use was made of spoiled and contaminated animal remains, diseased animal or human carcasses, excreta or other disease-contaminated materials to try to spread disease and cause epidemics. In fact, at one time it was thought that this tactic was used in the U.S. Civil War, but it now appears that only unintentional contamination occurred. But while purposeful use of biological warfare did not occur in the Civil War, there seems little doubt that the early colonists used smallpox-contaminated materials to infect the native American Indian population, which had no prior exposure, resulting in deaths of epidemic proportions.

Equally hideous and far more extensive were the Japanese ventures into CBW experimentation and wartime use on the mainland of China beginning in 1931 in POW camps and against Chinese villages. Japanese experimentation ran the full gamut of biological warfare agents (see Table II) using Chinese, Russian and American prisoners of war between 1931-1948, causing up to several thousand fatalities, and involving a number of attacks on villages. The POWs were used as human guinea pigs and were exposed to bubonic plague, anthrax, typhus, tularemia, gangrene, etc. Frequently, the sickened soldiers were put to death to terminate the experiments. Prisoners in these experimental BW camps were exposed to cold and to the torture of a slow freezing death. Bubonic plague was also disseminated by air over Chinese villages; this failed to cause epidemics presumably because the natural vectors (rats, ticks) were inadequately contaminated; however, deaths did result. (Later, in the Korean War, the Chinese accused the United States of similar attacks; a non-governmental international scientists' group supported the claim but the United States has continued its denial to this date.)

The U.S. Stockpile alone contains 1×10^{13} lethal doses, or enough to kill every human and every animal on this planet several hundred times over.

The extent of the Japanese BW experiments on humans was first revealed during war trials by the Russians in Siberia after the end of World War II; subsequently, the Russian charges were substantiated by publications within Japan itself. However, it now appears that the CIA agreed to protect the commander and other top staff of the Japanese BW groups against Nuremberg war trial prosecution, in return for providing the United States Department of Defense with detailed records of these almost two decades of experimentation on human POWs. This posture of protection of Japanese war criminals by the U.S. military may appear to be out of keeping with the vigorous role of the U.S. in the European Nuremberg trials; it was, however, very much in keeping with the Army's interest in biological weaponry and with the secret activities of the Chemical Corps in testing biological and chemical attacks on the unsuspecting populations of American cities between 1949 and 1968.

Post WW II: The Growth, Attrition and Rebirth of CBW

Spurred on by the potentialities of nerve gases and their unique strategic and tactical features, as well as by the inherent potential of germ weapons, the post WW II military in the U.S., U.K., and France vigorously pursued the development of new agents as well as the production of both nerve gases and biological weapons. The evidence suggests that the Russians did the same but also concentrated considerably more resources on military and civil protection. All this occurred despite civilized rejection of gas and germ war in the European theatre. Anti-CBW attitudes also became stronger over the past war decade emerging in the 1960s from forces dedicated to a total ban of CBW. Serious progress was made in the 1970s toward an international ban on all aspects of both chemical and biological warfare except "defensive research." Nonetheless, constant pressure by pro-CBW elements in DOD fell on fertile soil in the late 1970s, using the growing conservative political climate to paralyze international chemical warfare treaty negotiations and restore legitimacy to chemical and biological warfare. Towards this end, the gas and germ warfare planners were aided and abetted by the emergence of new chemical weaponry (Binary nerve gases, full-air bombs) and new biological design possibilities (recombinant DNA and genetic manipulation) and by the gradual corrosion of the detente atmosphere from the late 1970s on to the present.

The international ebb and flow around CBW was also strongly influenced by United States use of chemical warfare in Vietnam throughout the 1960s and early 1970s. In addition to the use of 200,000 tons of CA and CS lachrymatories (tear gas) and the reported use of the psychochemical BZ, there was the continuous use of napalm anti-personnel weapons, and finally, the use of agent orange and other herbicides as ecocidal agents on a very large scale. Taking these features one at a time, the U.S. contended that the use of lachrymatories (and even sternutators), which were nonlethal, was not covered by existing prohibitions, although most other nations had already taken exception to this exclusion. However, field reports made it clear that when CA or CS were used in confined areas (tunnels, caves, bunkers), they could be lethal and incapacitative. This technique of "flushing out" enemy soldiers seemed to be the main uses of the lachrymatories in Vietnam, bringing them far closer to the usual definition of a CW agent.

In a similar fashion, the U.S. chose to define the use of napalm as an explosive and incendiary weapon and not as a "chemical" agent. They did this despite the fact that elemental phosphorus is a distinctly chemical substance employed, in this instance, for pure anti-personnel purposes.

The massive use of herbicides (1.1 million tons of agent orange) has defoliated 5 million acres of Vietnamese land, many of them critical areas such as estuarial mangrove stands which are still denuded of trees and incapable of supporting the normal flora and the marine and wildlife populations. Again, the U.S. military position has been that the clearing of heavily forested areas is defensive, depriving guerilla formations of natural

TABLE 2 — BIOLOGICAL WARFARE AGENTS

		ORGANISM	ROUTE/EFFECTS	THERAPY	REMARKS
BACTERIAL	Anthrax	B.anthracis	respiratory/fatal	antibiotics	Domestic animals, man, Stable spores:
	Brucellosis	Bruc. mellitensis	-/Incapacitate	antibiotics	Domestic animals, man
	Cholera	Vibrio cholera	Ingest/serious-fatal	?	Epidemic potentiality
	Plague	Pasteurella pestis	Insect/fatal	antibiotics	Respiratory form suited for B.W.
	Tularemia	Pasteurella Tularensis	/severe fatal	antibiotics	
	Glanders	fungal	/severe fatal	antibiotics	Domestic animals; man
VIRAL AGENTS	Dengue fevers	Dengue virus	Insect vector/severe	—	Incapacitives, hemorrhagic
	Smallpox	Pox virus	/severe-fatal	—	Special uses possible 3rd world
	Yellow Fever		Insect vector/fatal	—	Temperate zone variant being sought
	Q Fever	Cox bàrietu	respiratory/severe	antibiotics	Very infective
TOXINS	Botalinus	Cl botulinum	Ingest/severe to fatal	—	Rapid acting
	Ricin	Plant protein	Ingest/severe to fatal	—	U.S. 2-3 tons
	Saxitoxin	Shellfish	Ingest/severe to fatal	—	U.S.-small stockpile
HERBICIDES	Agent Orange	—	Ecocidal/Contaminant p-dioxin toxic	—	5 million tons used in Vietnam

cover, and is not directly antipersonnel. But this avoids the issue of genocidal effects due to removal of food supply and protective shelters from civilians in the deforested areas where the effects on the aged, the ill and neonates could be serious if not fatal and could persist for more than one generation. DOD arguments also ignore the profound effects of a continual contaminant of agent orange, p-dioxin, perhaps the most poisonous hepatotoxin known and a powerful experimental carcinogen. The existence of this material as an impurity in agent orange was known both to the producing companies and the procurement agencies as was its extensive toxicity. As a result of disclosures by U.S. Vietnam veterans it is also apparent that many thousands of U.S. servicemen connected with the military use of agent orange or indirectly exposed to it believe that their health has been seriously compromised. As has been fairly widely reported, they are placing political and legal demands before the U.S. Government for compensation for damages. Should damages be awarded, it would be hard to argue that agent orange was not a CW agent. Thus, the use of agent orange is hardly a pure case of tactical action for self-protection because the massive nature of the attacks have themselves introduced aspects of ecocidal, genocidal and chemical toxicity into this form of warfare.

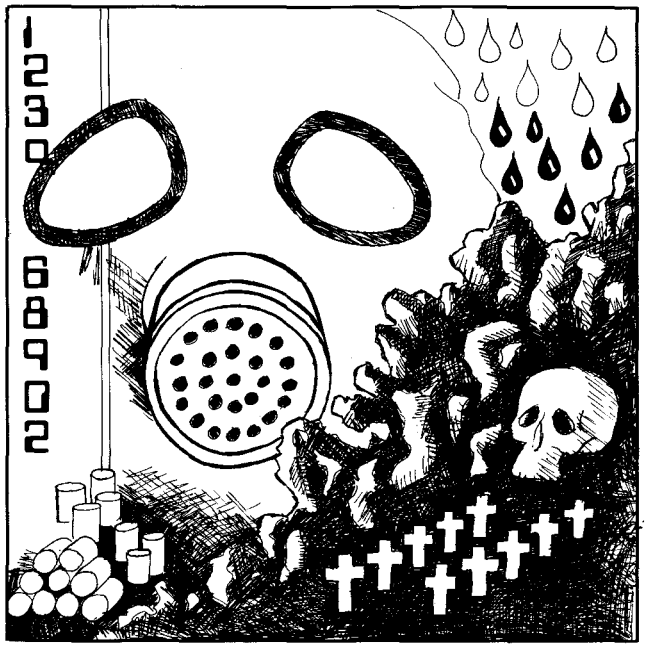
By 1980 the Army had re-established a significant budget of $20 million for research on biological weapons, a figure which has climbed towards $100 million under the guidance of President Reagan.

Public Resistance Builds

The anti-war protests of the Vietnam era also served to foster a growing realization on the part of the U.S. populace and leadership of the particularly dangerous situation represented by massive U.S. stockpiles of nerve gases. With 10^{13} lethal doses stored near major population centers and subject to transfer from point to point in the U.S. and overseas, locations like Rocky Mt. Arsenal, where military planes carrying nerve gas munitions would fly over nearby Denver, became focal points for civic and governmental concern as to the extreme hazard to the civilian population. In effect, population centers near nerve gas depots were hostage to the care and concern of military personnel in charge of the storage and movement of the nerve gas munitions and at the mercy of mechanical failure, accident or sabotage. The extent of such danger had already been shown dramatically by the sheep-killing episode in Utah in 1968. In this incident, an experimental release of nerve gas at the Dugway test site was overtaken by a change in wind pattern leading to the death of some 6,000 sheep *30 miles downwind* and approximately 50 miles from Salt Lake City. At first DOD denied responsibility, but eventually damages were paid to the livestock owners. Subsequently, these considerations led to a Congressional ban on the shipment of nerve gases, a set of directives to destroy the stocks on hand and the refusal of Congress beginning in 1970 and continuing through 1980 to authorize further production of nerve gases in any form or any open testing of nerve gas weapons. Thus by 1975, the CW part of CBW had been reduced to a research and development (defensive) budget. The Army Chemical Corps had been reorganized so as to attach chemical officers to individual Army formations. Even the main center for CBW research and development, Fort Deitrich, MD., was converted to a cancer research center.

As a result of the overall detente climate against CBW, chemical and biological warfare negotiations were resumed in Geneva by the UN Committee on Disarmament in 1968. By 1969 President Richard Nixon issued a ban on U.S. use or production of biological weapons. Progress was quickly made on the issues of biological warfare and by 1972 a treaty banning all forms of biological warfare had been hammered out and signed by the major powers and 90 other nations. This treaty not only banned the use of biological weapons, it also banned their production and development, permitting only defensive research. In 1972, the treaty was ratified by the U.S. and signed by President Nixon. On the face of it, this treaty should have banned all further interest by DOD in biological warfare; it is certainly not a "no first use" treaty since it allows no weapons production on which a retaliatory response could be based. But despite the clearcut nature of this ban, by 1980 the Army had reestablished a significant budget of $20 million for research on biological weapons, a figure which has climbed towards $100 million under the guidance of President Reagan.

The present return of the DOD to an active pursuit of BW weapons research despite the international ban, follows three decades of carefully hidden activity, only some of which is now being made public. Today, we do not know how much or what kind of experimentation DOD has conducted nor what kind of systems (human volunteers, prisoners, nonamerican populations in remote areas), nor how much of the biological agents and weapons have been produced and stockpiled. Despite the order to destroy toxins, bacterial stocks and viral



Keith McHenry/Brushfire Graphics

stocks, it is now clear that executive orders were not rigorously adhered to and stocks were maintained at Dietrich and other locations; to avoid destruction of these stockpiles contingency plans were formulated to transfer the stocks to private companies.

In this same postwar period, at least 52 colleges and Universities received secret CBW research contracts. These involved, as did other DOD research, experiments with human beings using hallucinogens (BZ), release of clouds of bacteria, (S. marcesens, B. subtilis niger, B. globii,) cereal rust spores, chemicals (Zn and Cd sulfides) over farm lands, cities (San Francisco and New York), subway systems and tunnels. There is also documentation of experiments with B. pertussis and whooping cough leading to increasing occurrence of the disease as well as evidence of the conduct of highly infectious disease research (e.g., rift valley fever) near population centers such as New York City. All in all, a total of 160 such simulation tests have reportedly been conducted since WW II, including one in Cambodia which showed success at the expense of 600,000 civilian casualties. Currently, there is serious concern that DOD activity in biological warfare has increased again as government CBW funding has also increased.

The temporary eclipse of chemical warfare was produced by the great fear of nerve gas accidents and the continued rejection of CW. The resistance in the U.S. was further advanced by the unwillingness of our allies to stockpile nerve gas weapons and by increasing demands by several countries to remove existing nerve gas munitions. Even in the Federal German Republic, strong forces demanded removal of nerve gas munitions. In response to this, in the mid 1970s, DOD introduced its program for a new nerve gas weapon called binary nerve gas.

Growth and Development of Binary Weapons

Binary weapons were designed to meet all objections to the transport and storage of nerve gas through the use of a new principle. Two non-lethal chemicals would be mixed only at the time of use, so as to generate the active nerve gas. Thus, for example, a 105mm artillery shell would contain a plastic container with chemical V which would in turn, be surrounded by chemical X. When the shell was fired, the acceleration would drive the container against the forward wall of the shell so as to break it, the spin would rapidly mix V & X and the temperature would accelerate the reaction. While V and/or X may still be quite toxic, unlike nerve gas, a single drop of either would not be deadly. Thus, the binary weapons principle would be logistically favorable and could be incorporated into many kinds of munitions. This technological development gave the Army the opportunity to press for a total renovation of the CW program including the replacement of "dangerous" outmoded stockpiles of mustard and nerve gas with the binary nerve gas weapons, at a projected cost of several billion dollars. In the Army plans, the new "harmless" binary weapons were to be incorporated into front line armaments under the control of forward theatre commanders, as would be regular weapons and tactical nuclear weapons. These plans for nerve gas rearmament were immediately opposed by forward theatre governments (e.g., West Germany, Scandinavian countries, Holland, etc.) and received only developmental support until the Reagan administration took office. Under President Reagan, the balance between demand side procurement (i.e. need for replacement weapons, need for new designs, etc.) and "supply" side activity (i.e. industrial and economic demand for contracts) has tipped over almost completely to the "supply" side. Irrespective of their dubious military value, chemical weapons proponents in DOD were able to join the "supply" side surge in military procurement and get Administration approval of the binary program, beginning with the construction of their own production unit, made necessary by industry's unwillingness to invest in this activity.

The binary program has not only permitted the rebirth of chemical warfare, but has contributed to slowing and stopping the progress towards a chemical disarmament treaty.

While binaries do sanitize nerve gas for shipment and storage, they have no advantages and some serious military drawbacks with respect to the existing array of nerve gas munitions. The question arises, therefore, as

(continued on p. 29)

ORGANIZING PIECE-RATE WORKERS IN THE TEXTILE INDUSTRY

by Bob Lange and Jonathan Lange

The American South is the location of some of the most dramatic and important labor struggles in this country. Many of the clothing manufacturers with factories located in the South also have operations in other areas of the U.S. where unions are stronger, and in the third world countries. They have located in the rural south at least partly because the workforce there is not well organized. The manufacturing companies can use as their ultimate weapon the threat of pulling out of these rural areas where few other jobs are available.

In this climate, trade unions have had an extremely difficult time organizing the workforce. The corporations have employed anti-labor consultants who have learned how to use the fears of the workers and an understanding of the sociology of the region to keep the unions out and the wages low.

Automation is always being intensified, and much of the labor inherent in the products being produced is in the machines, the computers, and the training expenses for the managers of higher and higher technology. The workers are essential elements of the process and are to be found in the cracks between the machines. The location of these cracks or interfaces moves and changes all the time. More and more, the task for the worker becomes one of moving and aligning things and inspecting them as they emerge from one automatic processor and into another. Technological innovation may eliminate one interface or another, thereby completely removing the need for a worker to be present to help with and streamline a specific process. But the continued implementation of automation directly as it is developed inevitably requires the presence of humans to patch it together and make it productive.

In this context, the worker is a movement machine. This is expressed in the study of the labor process through the science of industrial management. Time and motion science is a study in which human motion is perceived as machine motion. People's limbs and eyes are studied as separate and unrelated to their minds, let alone their feelings. This methodology is used to define and analyze each machine-like task to be executed between the real machines. Of course, the machine in the "crack" is a person, and the contradiction that both workers and management live with is that the company needs the humanness of the worker in that interface but treats the jobs as if it were being done by a machine. The contradiction is heightened in that the workers also express and experience their work as something they do when they are not really themselves; their real selves are expressed at home with their families, on vacation, and at their hobbies. This machine-person duality is intensified and in some sense completed in the implementation of the piece-rate method of determining pay. Management enforces the piece-rate system; the worker, in accepting it, is driven to stressful levels of production. Thus, labor and management join in the production of the "nonhuman human," the missing link in the process to produce the most possible at the least cost to the company. There is little or no room for consideration of humane roles for people in the production process, nor for the intelligent and democratic implementation of technology.

The Piece Rate System at Work

The very way the piece rate method of pay is communicated to the workers in much of the clothing manufacturing business provides a representation of the contradictory role of the human being in the process. Each job on each style of clothing being manufactured is assigned a "base rate" and a "100 performance level" by

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Bob and Jon are brothers.

the company. The base rate is supposedly the fair hourly wage for a person doing the task. The 100 performance level is supposedly what a person would produce performing as a machine working at 100% efficiency. This level is determined by studying the task in terms of atoms of machine-like movements according to the categories and dogmas of industrial engineering. The actual pay for the work is completely determined by the number of pieces handled. The base rate is not a pay floor level, or guaranteed pay with piece rate incentives on top of it. A worker can make less or more than the base rate depending on whether less or more product than the 100 performance level is actually moved.

The maintenance of a reasonably stable relationship with the worker as a person generally requires that the base rate, the ostensible pay, not be decreased. The illusion that this is a salary-like figure which moves up fairly as the economy develops must be maintained. The manipulation of the work load, and the minimization of labor costs to the greatest extent possible is done by changing the 100 performance level. After all, the 100 performance level is treated as if it were a scientific quantity with a precision following from the infallibility of science and the objectivity of scientific language. The worker is manipulated almost daily by management, which controls and changes the piece rate in the name of objective analysis. The burden of living as a human machine is difficult enough in terms of the struggle to earn a reasonable paycheck each week. It is made almost intolerable by the process through which the performance required of the human machine is always open for redefinition. A typical worker works on several clothing styles every day. The real pay for any of these styles can change at any time, and often does. The percentage of time spent on styles that pay relatively well is under the control of management. The worker caught in this system often knows a great deal about what makes a particular style easy or hard to produce. This knowledge is largely irrelevant.

... the old fashioned slide rule was the obvious choice for a teaching device. A slide rule could also be, literally, a conversation piece, a real object, something a bit unusual looking that you could show to someone, argue over, and wave about in anger.

Bob Lange

"The manufacturing companies can use as their ultimate weapon the threat of pulling out of these rural areas where few other jobs are available." Above: downtown Galax.

Organizing Piece Rate Workers

To some degree, working people have internalized the official value system that justifies the limited benefits they receive from society in spite of their essential and fundamental contributions. Scholarly work abounds on the questions of class consciousness, identification with the oppressor, mechanisms of cooptation, and the relationship of sexual-political issues to issues of class and resistance to authority. In the field, the union organizer must struggle with his or her own issues of fear of and resistance to authority while helping, pushing, and guiding the worker toward the goal of expressing real self interest and compassion through the potential embodied in an organization. The company, the government, the family, and the media bombard the worker with a thousand reasons to trust the boss and not the outside "troublemaker" who is portrayed as trying to serve only the interests of an outside organization at the expense of the workers.

It is for these reasons that unions like the Amalgamated Clothing and Textile Workers Union (ACTWU) are now experimenting with organizational techniques that stress the importance of building an indigenous "action organization" that challenges management rather than just asks the workforce for political support in a representation election in the hope that future negotiations will solve shop problems. In building these organizations, the role of the union organizer is redefined. He or she attempts to understand the entire workings of the plant and to use the shop issues not just to rally support for the union but to give the workers an experience in struggle and unity.

Since a modern plant in the South is fully intertwined with the corporate structure of the whole country, its profitability is always a crucial issue. Capital can flow quickly and in a devastating fashion in this age of conglomerates and multi-national corporations. In this context, the workplace is incredibly dynamic. Pressure is on the local management to tune the operation continuously. There is little tolerance by the company to simply proceed with operations as they are for the sake of tranquility or predictability. The workers thus face an active adversary. They are lured into accepting the idea that all this activity is in their interest in that their interest is defined for them simply as the continued operation of the plant. They are encouraged to turn to the very people who are making the decisions that redefine the value and pace of their work for the justification of the changes.

The dynamism in management faced by the worker is both the opportunity and the danger faced by the organizer. If willing to adapt the concept of the union to make it one relevant to helping the workers protect their interests in this situation, the organizer can overcome the image of the union as another distant and selfish authority different from the company only in that the union cannot provide employment and the company can. The union becomes not just an organization to negotiate a contract and handle a grievance, it becomes a weapon with which to challenge management in a style consistent with the behavior of management, that is, dynamically and on a weekly and even daily basis. This means that the internalized fears and values that make worker organization frightening and undesirable to workers will be constantly stirred up. If every day management is making decisions to tune and sharpen the exploitation of the workers, then every day the organized workers will be standing up to management and taking actions associated with fear of losing one's job, with opposing authority. A workers organization able to continuously act and fight is an organization that is constantly reminding workers of their vulnerability.

In Galax, Virginia, ACTWU has been helping a group of production workers in a Hanes underwear plant. Hanes located in this small town where the only competition for the labor force consists of a few large family-owned furniture factories. The company put nearly all of the 1200 production workers in this plant on piece rates in order to decrease costs and increase production. When the union began to help these workers it was obvious that many of the shop issues that would be useful in organizing would be piece rate issues. For most of the workers in the Galax plant the pay at the end of the week is literally the bottom line. The stress and the health problems related to working as fast as possible to increase the piece count are in the forefront of the consciousness of the workers.

> *"Why is it that Hanes can find a way to adjust our rates down on Little Boys' sizes, but they can't use the money they're taking away to adjust our rates up on Men's? They know we can make a little extra money on the small ones, but they also know we lose a lot of money on Men's."*
>
> *—Kathy Waller, Sewing*

> *"I like the raise fine, but I hope production doesn't go up. We worked together to get it, now we need to make sure we keep it."*
>
> *—Arlene Roberts, Central Packaging*

There is ample anger and frustration connected to working in an arrangement in which your pay is tied to your speed, and your speed can be devalued at any time by the scientific experts watching you. The frustration is heightened in that this devaluation will be communicated to you in a way made intentionally obscure.

"Empowerment is the Issue"

The obscurity results from the fact that when piece rates are defined in terms of base rates and 100 performance levels, there is a calculation that must be done to determine the corresponding piece rate. Raises are increases in base rates, and speed-ups as well as real productivity increases are increases in the 100 performance level. Since the piece rate is proportional to the ratio of these two quantities, when they both change the actual piece rate raise due to a base rate increase can be smaller than the company would like to talk about. Many workers have problems with the mathematics involved in analyzing these relationships.

The question facing the organizer is, then, what approach should be taken to the math problem underlying the confusion about piece rates and raises. Empowerment is the issue, and it must be decided whether this is an opportunity for generalized empowerment through math education or more specific empowerment through, in some way, eliminating this particular math problem from concern so that the workers will be able to focus on the social and economic relations underlying the way they are treated and paid. Also, the organizer must be conscious of the implications of the process used to clarify the issues. It should be one that brings workers together, increases communication and the sharing of ideas and understanding, and increases trust and identification of the union as an organization truly concerned for their welfare.

The piece rate calculation dilemma has the appearance of the math educator's dream. It is a concrete problem that could not be more integrated into the life of the potential student. It is almost a cliché in the adult education field that such concrete and realistic problems present especially promising opportunities for introducing students to math concepts. In terms of a general approach to empowerment, the piece rate calculation problem could be looked at as only a representation of a more general issue. The education of the workers has been so poor that they feel uneasy with a ratio or fraction problem. This indicates a weakness that undoubtedly shows up in other contexts as well. On the other hand, even with the best intentions and most sensitive technique, teachers working with adults know that progress is slow, and blocks to grasping math have incredible variety in their forms and in what it will take to remove them. Perhaps this is a time to try something quite different, that is, to make the math problems disappear much as a hand calculator makes long division disappear.

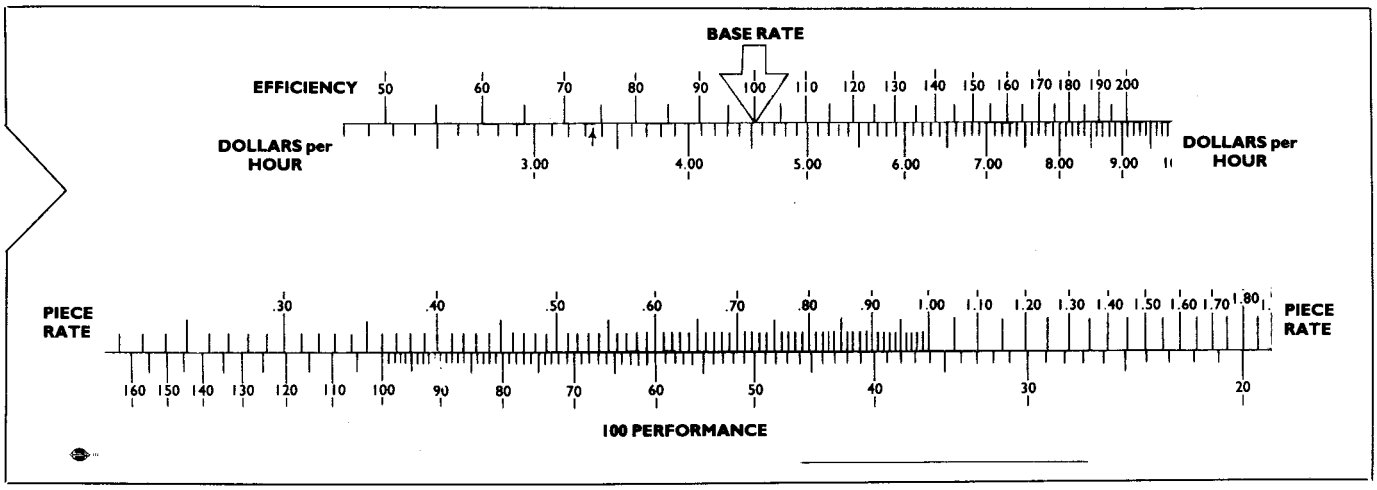
Another consideration is the accessibility of the people needing help with piece rate calculations. At any moment in an organizing campaign, the workers fall into a broad spectrum with respect to their willingness to be associated with the union activities and to spend time with those workers deeply involved in them and with union employees. It is desirable to not only help workers already seeking association with the union with their problems with piece rates, but to use the piece rate confusion as a medium through which to reach new people and to get new groups of people talking to each other. Once sufficient confidence has been built up around the piece-rate issue, there is no better context for groups of workers to confront their bosses in the plant than in front of those workers still watching to see the consequences and significance of the new collectivity and militancy building up around them.

It therefore occurred to us that we should design a device to do just those calculations surrounding the piece rate confusion and no others. It would have to be simple to use and transparent enough in its operation that those who wanted to could use it to teach themselves more about the underlying math problem. Since piece rate problems of the kind faced by these workers involve only multiplication and division, the old-fashioned slide rule was the obvious choice for a teaching device. A slide rule could also be, literally, a conversation piece, a real object, something a bit unusual looking that you could show to someone, argue over, and wave about in anger.

Science for the People: The Birth of a New Tool

To make a slide rule in the hills of Virginia requires a little resourcefulness. Slide rules depend for their operation on scales with marks spaced proportionally not to the numbers you want to work with but to their logarithms. Graph paper can be obtained with scales of this kind, but it took a trip to Virginia Tech to find some. Using the mimeograph machine in the back of the union hall, we produced a trial model and convinced ourselves that we had a workable idea. Later, Red Sun Press in Boston worked with us to produce a cardboard version that was more accurate and easier to read.

The use of the slide rule in the organizing campaign did not work magic. It was, and is, just one more tool in the kit of the organizer. The first decisions to be made involved how to introduce it to workers. It seemed a slide rule could be used as a good reason for someone to sit down with an organizer and talk about pay and the manner in which the company handled the pay issue. Any worker who already had one could show it to



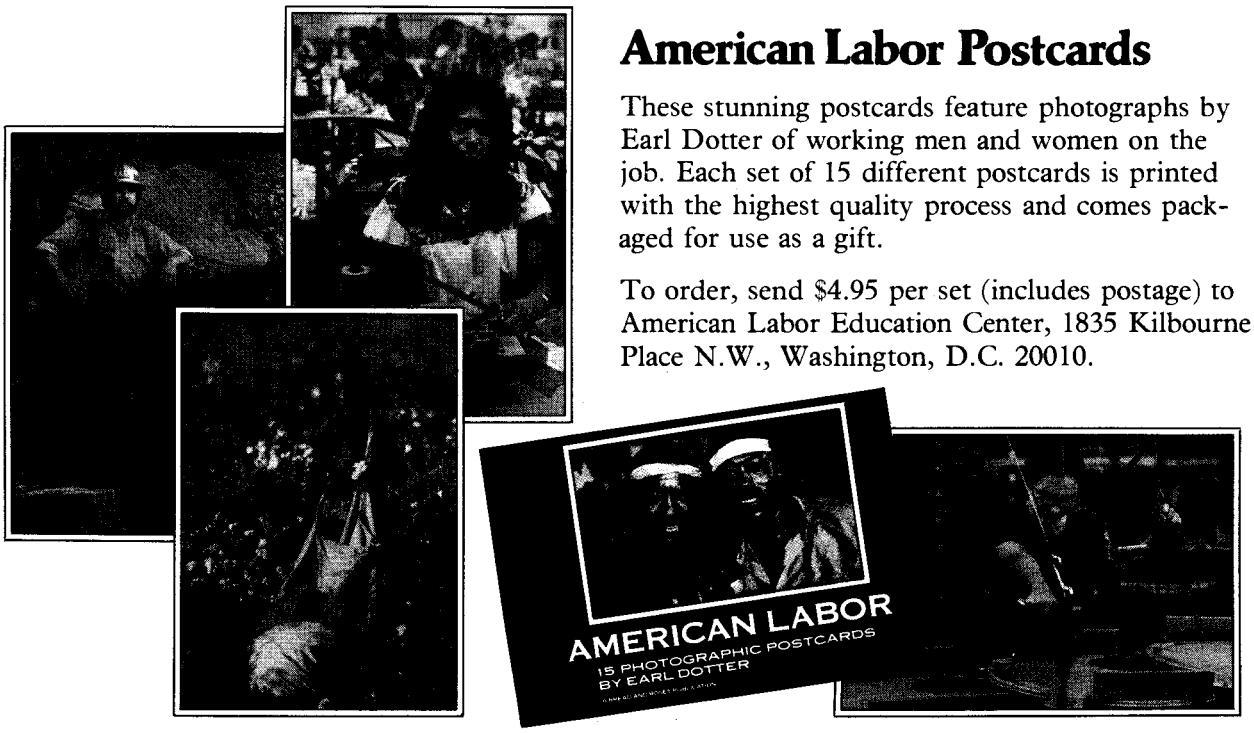
Above: the piece rate slide rule.

another teaching how it worked and what it could be used for. To get one's own, however, would require at least some contact with the union. Making house calls in order to visit workers and discuss the problems causing dissatisfaction in a particular department is one of the good ways to make contact with those who are not ready to hang around the union hall or come to meetings. Getting a demonstration of the slide rule became an excellent reason for a worker to want to get together with someone from the union.

While the idea behind the slide rule involved abandoning the idea of engaging in general basic math education, it was exciting to find that many of the workers were not just interested in the numbers related to their pay checks. For example, one worker, Kathy Waller, who sews underwear in Galax, not only wanted to explore concrete examples from her own paycheck, she insisted on being quizzed on hypothetical examples of rates and levels of performance and wanted to know how the slide rule worked and how the numbers on the rule were related. The relationships embodied in the slide rule facilitated the playful and exploratory attitude sometimes necessary to make general progress in math education. This interplay between the abstract and the concrete is a common feature of adult education. While, on the one hand, it is often the case that interest comes from concreteness and relevance, the abstractions in math can be fun and educational for people in all sorts of situations.

It should be obvious that we really do not want to have our clothing produced under conditions that exploit and overwork people. But to question the social organization of a clothing factory is to question the organization of the entire society. Machine-like demands on human workers in such a plant are representations of the demands on people throughout our social system. The system is promulgated as a complex network of roles, defined structurally as if the roles existed in the abstract without people in them. Once these roles are so conceived, it becomes natural to describe them and define them with a science-like language. Thus the space between two machines is described as one to be filled not with a person at work, but with objects being moved and manipulated in time. It is essential that the space be filled with a person who can make the minute adjustments that perception and awareness can provide. But it is also essential to the production system that the humanness of the worker be kept invisible so that the basic unfairness in the arrangement can be rationalized and ignored.

Progressive people in science, technology and education find few opportunities to actually do something that puts in the hands of people some science for them. Regardless of how humble the effort and how small the accomplishment, we must find and create more such opportunities. □



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"WE'RE SICK OF BEING GUINEA PIGS"

The Effects of the U.S. Military on the Marshall Islands

by Laura Reed

"For all these years, we have been treated as second class citizens, although we still own our lands. The military makes the decisions on our lives ... We want to tell people of our experience, so that by seeing what we have gone through, they can make the decision of not having it happen again."

—Darlene Keju on behalf of people of native Micronesia.[1]

Darlene Keju hesitates as she approaches the podium. This evening will mark her fourth appearance of the day, with as many scheduled for the following days of her two week tour of the U.S. But she is a woman with a mission, trying to make people care about people and lands thousands of miles away, subject to the strategic interests of U.S. military policy. She has only to think of her sister, or her relatives back home in order to collect her thoughts and once again explain the suffering and injustice perpetrated on her people as a result of the use of the Pacific as a playground for nuclear weapon tests and U.S. foreign policy.

Darlene is in the U.S. to represent the concerns of the residents of the Marshall Islands, a series of islands in the Pacific 2000 miles southwest of Hawaii that are being used for target practice for U.S. ballistic missiles. She was born on an island used by the U.S. to test atomic bombs in the 1940s. Darlene has several tumors that she believes are a result of radiation exposure from tests she witnessed as a child. Her sister, Alison, died as a result of complications in childbearing, a victim of inadequate medical care in a segregated society. The placement of Marshall islanders onto a 78-acre island with understaffed and ill-equipped medical facilities, three miles from a U.S. military hospital with 6 doctors, is but one dimension of life under the auspices of the U.S. military. For the Marshallese, much has changed since the U.S. became trustees of the islands at the end of World War II.

"The World's Only Strategic Trust"

The Pacific people share a history of foreign domination and exploitation. The Micronesian islands, including the Marshall Islands, the Republic of Palau, the Mariana Islands and the Federated States of Micronesia, have been colonized by four different powers over the past 400 years: Spain, Germany, Japan and the U.S. At the end of World War II, Micronesia became a trustee of the U.S. under a UN mandate. The islands were designated as the world's only "strategic" Trust Territory. "Strategic," according to the 1947 UN agreement, meant that the U.S. has the right to use the islands for military purposes. In return, the agreement specifically requires that the U.S.:

> promote the development of the inhabitants of the trust territory toward self-government or independence as may be appropriate . . . and to this end shall promote economic advancement and self-sufficiency of the inhabitants . . . encourage the development of fisheries, agriculture, and industries; protect the inhabitants against the loss of their lands and resources . . . protect the health of the inhabitants . . .[2]

Recently, a plan to give limited independence to the Trust Territories has been approved by the islands. It has been under negotiation for 13 years. Entitled the Compact of Free Association, the agreement provides for independent self-governance except in military affairs which would remain under American control. Frequently called "military denial rights," the agreement provides the U.S. with authority to conduct any military activities considered "necessary" for carrying out its "de-

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fense responsibility." The Marshall Islands were the first to approve the Compact in 1982. A similar agreement was passed by the Federated States of Micronesia and the Republic of Palau in 1982. The fourth trust territory, the Mariana Islands, voted in 1975 to become a U.S. Commonwealth, similar to the status of Puerto Rico.

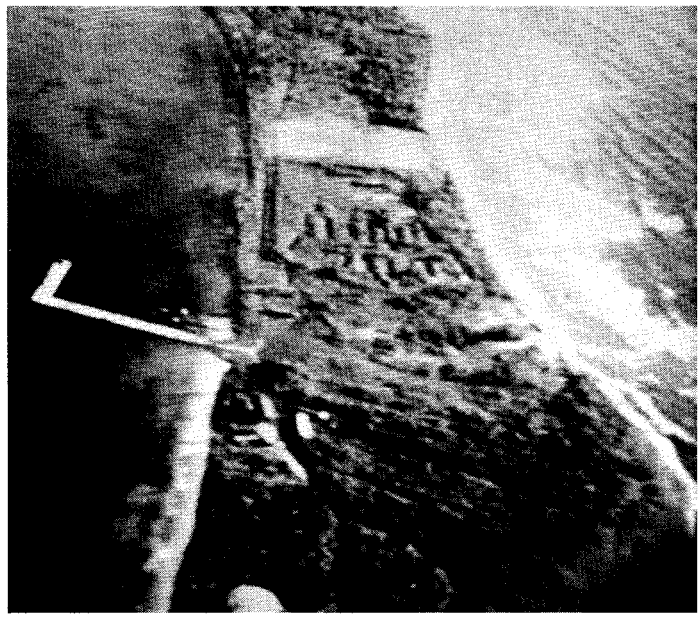
In 1960, the U.S. expanded its military installation on Kwajalein Atoll, a ring of islands that encloses a 900 square mile lagoon. Inhabitants from the southern tip of Kwajalein Atoll and 50 miles southwest to Lib Island were moved to make room for an "impact area" for incoming missiles. Kwajalein missile range is now the principle testing facility for ballistic missiles, including the MX, Trident II and Minuteman, among others. Although the atoll is only leased by the U.S. and the Marshallese still own their land, they are treated as second-class citizens and denied many of the rights given the Americans leasing the land. The U.S. has moved people from two thirds of the islands, dislocating at least 4,000 people and placing them onto the small 78-acre island of Ebeye, 12 acres of which is occupied by a U.S. shipyard. The 66 available acres of Ebeye now house 8,000 Marshallese

Beginning in the 1960s and culminating in a four-month long "sail-in" in 1982, Kwajalein landowners have strongly protested their relocation from the 90-plus islands that make up Kwajalein Atoll. Coined "operation homecoming," the 1982 protests stemmed from the opposition to the initial version of the Compact agreement that would have allowed the U.S. to continue leasing the atoll for use as a testing range for the next 50 years and would have allowed the U.S. permanent military denial rights, making the Marshalls an exclusive U.S. military preserve. The 800 or more islanders who participated in the protests camped out on several islands that were officially off-limits, succeeding in disrupting the testing of strategic missiles, including the MX.[3]

While the U.S. military and press portrayed the protests as stemming from disagreement over economic compensation and payment for the missile range, Darlene Keju described a different reason for the protests, saying

> They didn't do it for money . . . People are beginning to miss their culture; the elderly are beginning to realize that their youngsters are missing out and are not learning what they should be learning – how to weave, how to fish, how to climb coconut trees, what's the name of the local fruits; a whole range of things that the younger Marshallese, like my younger brothers and sisters, have not learned . . . We felt that we can't tolerate this anymore. We are humans and you [the U.S. military] are going to have to live with us.

The Marshall Island protests in 1982 were among the most successful civil disobedience efforts of recent years, succeeding in disrupting several ballistic missile tests and forcing the U.S. to renegotiate the Compact of Free Association. As a result of these protests and native opposition to the U.S. terms of the agreement, the U.S. agreed to relinquish 6 islands to the landowners and to have continued use of the atoll for only 30 years, instead of the next 50.



The Island of Ebeye, before and after U.S. reloc 1940, before the U.S. relocated 6,000 Marshallese today. The crowded, barrack-like housing situa Marshallese.

Overview of Racism and Exploitation

The Marshallese are a people that have no word for enemy in their language. The people have shown continued good faith towards the U.S. as their liberators from the Japanese in World War II. But theirs is a culture that thrived for centuries on a fishing, farming, and gathering economy. The islands differ from each other greatly in their vegetation and fishing possibilities due to tides, winds and ground covering. Moving people from one island to another has the effect of destroying the traditional subsistence lifeways and culture. Having destroyed the traditional economy, the U.S. is not willing or able to supply the enormous resources to provide a substitute.

Although the Marshallese were traditionally self-sufficient, there is no longer land available for gardening for the residents of Ebeye; all food must be imported at great expense, while two thirds of the lagoon is off-limits for fishing, due to the missile testing. In addition, the large-scale U.S. fishing companies have undermined Marshallese efforts to sell tuna, claiming that it is a migratory fish and therefore does not fall under Marshallese territorial claims.

n of the Marshallese. On the left, is the island in o this 78-acre island. The right side shows Ebeye is but one example of U.S. treatment of the

The degree of overpopulation and inadequate sanitation on Ebeye is in stark contrast to the relatively luxurious and spacious conditions on Kwajalein. Living accommodations are so scarce that a number of people must sleep in shifts. There is no indoor plumbing on Ebeye; water is transported from other islands (the missile base possesses excellent wells), and the inadequate sewage system frequently backs up. Unemployment ranges between 30-40% with little potential for change. Besides work on the missile base, there are few other opportunities for self sufficiency due to the restriction of fishing, and the lack of farming land on Ebeye.

In the name of security, the U.S. military has enforced a system of apartheid. No Marshallese are allowed to live on Kwajalein island although about 500 natives work at the Kwajalein missile base. Required to carry badges, these workers travel to Kwajalein where they work in a variety of menial jobs. Marshallese who have worked on the island for a long time will train Americans who will earn vastly greater salaries than them in weeks. Although employed by the U.S. military, the Marshallese are not allowed to use the facilities and benefits available to American personnel and their families. The hospital on Kwajalein is not open to the Marshallese, except in emergency cases which must receive the permission of the resident Colonel.

Although all American military personnel and their families have free access to the use of Kwajalein's high school, hospital, subsidized grocery store, golf course and numerous recreational facilities, the 500 Marshallese who also work on the base are barred from their use. Those who do not work on the base must receive permission to even visit Kwajalein island and must carry a pass. Bags are periodically inspected and any goods or food which may have been given by American personnel to the Marshallese are confiscated. There is always the threat of jailing for Marshallese who miss their boats off the island; Because Ebeye does not possess telephones, an airport, liaison office, or a full service bank, Marshallese often make trips to Kwajalein to carry on their business. But the military is free to curtail these trips, or dictate when Marshallese are able to be on the island.

The explicitly racist treatment of the Marshallese stands in flagrant violation of the United States' obligation as stated in the UN mandate. The systematic segregation of all facilities and resources clearly goes against the U.S. responsibility to encourage the well-being and development of the islands. Although there has been a significant amount of aid given by the U.S.,[4] the bulk of the money has not been used to improve living conditions. There are no indoor toilets on Ebeye, in contrast to the modern plumbing on Kwajalein. Besides a few mediocre wells, all water must be transported to Ebeye, although the construction of a six-inch pipe connecting to wells three miles away on Kwajalein would meet the demand. There has never been a high school on Ebeye and Marshallese are not allowed to attend the high school on Kwajalein which is open only to Americans. Ironically, education of the people was one of the four specific requirements of the Trust Agreement.

Again and again, U.S. policy has succeeded in undermining efforts to improve living and social conditions on the islands in a way consistent with the UN mandate. Those efforts at social welfare have been largely unsuccessful; one case of misdirected resources lies in the construction and subsidy of elderly housing in a culture where older Marshallese, looked to with respect, have traditionally been cared for by younger family members. Besides the fact that housing for the elderly was needed far less urgently than housing for the rest of the population, it has served to discourage care for the elderly by younger Marshallese.

The U.S. recently renegotiated new leases for the use of Kwajalein Atoll for continued use as a missile test site during negotiations on the Compact of Free Association. The Marshallese are skeptical, though, of the benefit of continued "protection" by the US military. The Marshallese are concerned that this "protection" makes the islands more likely to become a target. Just 40 years ago similar "protection" was offered by the Japanese shortly before tens of thousands of Pacific people lost their lives in a war not of their making. As bad as the exploitative and racist treatment of the Marshallese is, it is best seen as a by-product, not a cause; the real villain here, as the Marshallese know well, is the military presence itself, and the nuclear testing.

In this photograph, U.S. Army officials tell the Bikini Islanders that the move from their native island is only temporary, and "for the good of mankind [sic]."

A Brief History of Testing in Micronesia

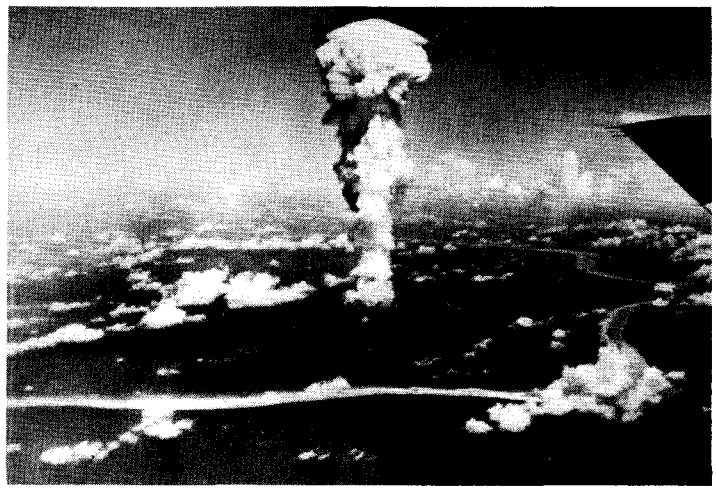
Although economically and politically ignored in the early years of the Trusteeship, the Marshall Islands were used extensively for nuclear weapons tests between 1946-1958. Beyond the Marshallese' control, the U.S. detonated at least 66 atomic and hydrogen bombs. In order to carry out the tests, the U.S. removed the Bikini and Enewetak people from their native islands, stating that it would only be temporary and they should leave "for the good of mankind [sic] and to end all world wars." Six islands were totally vaporized and hundreds of Marshallese people were seriously contaminated with radioactive fallout from these series of tests. Besides those directly exposed to fallout, many of the Marshallese were forced to evacuate their native islands, only to be assured that it was safe to return before the lingering effects of radiation have been adequately assessed. As a result, by 1970 the Marshallese continued to experience strikingly high rates of cancer, retarded growth, birth defects and miscarriages.

The first series of nuclear tests were held at Bikini Atoll (part of the Marshall Islands) in 1946. At the outset of the testing program, the Bikini Islanders were first moved to a nearby atoll named Rongerik, where they suffered from inadequate provisions. Within a year they were taken to Kwajalein island and then to Kili island in 1948. In 1969, the contaminated islands were declared free of dangerous radiation by the Atomic Energy Commission. The three-time relocated Bikini Islanders were told that the islands were safe for habitation and they began returning to Bikini in 1969. The Marshallese were relocated, yet again, to Kili in 1978, when new scientific data indicated that the islands would not be safe for habitation for another 60 to 90 years. An independent scientific team that visited Bikini in 1978 found that the inhabitants had unnacceptably high levels of radioactive cesium, strontium, and plutonium, perhaps more than had been ingested by any known population![5]

In 1954, the U.S. engaged in yet another series of tests, including the largest hydrogen bomb explosion to date in the atmosphere. Code named Bravo, the test exposed hundreds of displaced Marshallese on Rongelap Atoll (located about 100 miles east of the test site) to radioactive fallout when the wind "unexpectedly" shifted towards the inhabited islands.

In the case of the Bravo test, more recent evidence indicates that not only was the Magistrate of Rongelap Atoll warned by an American Navy friend that the upcoming Bravo test might endanger the Rongelap people, but military officials at a weather monitoring station reported to the Joint Task Force Headquarters that winds were blowing east from Bikini towards Rongerik and other inhabited atolls (including Rongelap) shortly *before* the tests took place.[6] Despite this documentation, the military claims that the winds "unexpectedly" changed positions during the test. The islanders were never warned of the upcoming nuclear tests and were told of no precautions to take to protect themselves from fallout.

Within four hours of the blast, a white snow-like ash descended on Rongelap Atoll, forming a layer two inches deep and contaminating all open water and food sources. By the evening, the people began to experience severe vomiting, diarrhea and burns from exposure. The military weather station on a nearby island also reported fallout from the test, but did not receive any instructions or authorization to evacuate the post. A Japanese



The Bravo Test, 1954: Several of the atolls in this area make for excellent targets due to their geographical features. Note the strip of land encircling the explosion.

fishing boat in the area with 23 fishermen also was exposed to the deadly fallout. Finally, the people of Utirik, about 275 miles east of Bikini received mist-like fallout late in the day.

Not until two days after the explosion were the 28 Americans at the weather station finally evacuated by plane from the contaminated island, while Navy ships began evacuating the people of Rongelap and on subsequent days the people of Utirik.

> When we arrived at Kwajalein we started getting burns all over our bodies and people were feeling dizzy and weak . . . After two days something appeared under my fingernails and then my fingernails came off and my fingers bled. We all had burns on our ears, shoulders, necks and feet and our eyes were very sore.
>
> —Etry Enos, Rongelap Atoll[7]

After three months of medical examinations and tests the Americans were pronounced fit and were not given any further medical treatment despite the fact that they had received at least 78 rads of whole body radiation; the Rongelap and Utirik people were also found to be 'fit'; the Rongelap islanders were then resettled on Ejit Island, while the Utirik were returned to their homes.

Shortly after the Bravo tests, a study found radioactive contamination to be 130 times above normal "safe" levels at a point 312 miles west of Bikini. A Japanese government-sponsored scientific team found radioactive contaminants in the ocean, ranging from the northern Marshalls westward to the Mariana Islands, 3,000 miles away. In the four years following their exposure in 1954, Rongelap women reported more than twice the rate of stillbirths and miscarriages of unexposed Marshallese. In 1958, four years after the Bravo test and in the midst of another series of 32 nuclear tests at Enewatak and Bikini, a Brookhaven report by Dr. Robert Conard revealed that "after the Rongelapese were returned to their islands in July 1957, their body burdens of radioactivity rapidly increased. In just one year, the Rongelap peoples' body levels of radioactive cesium 137 rose 60-fold, strontium 90 rose 20-fold and zinc 65 rose 8-fold."

Meanwhile, the atoll where the Enewetak people had been moved, Ujelang, was contaminated with radioactive fallout from a May 27, 1958 nuclear test. During this series of tests on Enewetak, military personnel lived only 10-20 miles from the 22 nuclear test explosions that took place. There were more than 90 Navy ships and 40 aircraft assisting these tests, called Operation Hardtack I. One 8.9 megaton test created a radioactive cloud that covered the inhabited island, yet no one was evacuated. The only action taken was to limit swimming in the lagoon for three days, although this precaution was not even taken for any of the other 21 tests.

Many more islands are contaminated as a result of these nuclear tests, not to mention the devastation wreaked on the coral reefs and waters of the region. In all, 23 nuclear tests were carried out at Bikini Atoll and 43 at Enewetak Atoll. The monetary cost of these tests themselves was $2.5 billion, but it is difficult to put a value on the health and social costs of this testing program.

Nuclear testing ended in 1958, but the military continues to use the islands to test new intercontinental ballistic missiles, fired 4,200 miles away from Vandenberg Air Force base in California. Kwajalein Atoll, wealthy neighbor to nearby Ebeye with its protected, shallow lagoon naturally suited for monitoring and retrieving

The next generation of Marshallese.

missiles, is now the primary U.S. missile testing facility in the world. The U.S. has invested $1 billion in facilities on the atoll alone. While MX and Trident II tests continue, the Pentagon is now planning future tests of new anti-satellite weapons and Anti-Ballistic-Missile systems.

"Sick of Being Guinea Pigs"

The long term health effects from accumulated radiation of those living in the area, but not directly exposed, has never been documented by an independent medical team. The Department of Energy periodically sent a scientific team to the islands to study the health effects on those islanders directly exposed to radioactive fallout. But this team will not treat the children of these islanders, or others who moved to affected islands after the testing, but have been exposed to longterm low levels of radiation due to the testing. The Marshallese have recently boycotted these visits in frustration over the scientists' treatment of the affected Marshallese. The team refuses to care for any Marshallese who were not directly exposed to radioactive fallout from the tests, a policy which excludes from medical care the children of exposed Marshallese and those now living in the region. Identified only by number, the Marshallese who are 'studied' by the U.S. scientific teams feel that they have received unsatisfactory and racist treatment.

The Marshallese feel that since the tests, the U.S. is only interested in the effects of atomic bombing and use the islanders as potential sources of data on the long term effects of radiation. As Darlene Keju has stated, "We are sick of being human guinea pigs." Indeed, based on the published findings of official scientific teams who have periodically visited the islands, it is clear that the data on radiation does in fact take precedence over the teams stated objective of treating affected Marshallese. As a three year report on Rongelap and Utirik, carried out by Brookhaven National Laboratory states:

> Even though . . . the radioactive contamination of Rongelap Island is considered perfectly safe for human habitation, the levels of activity are higher than those found in other inhabited locations of the world. The habitation of these people on the island will afford most valuable ecological radiation data on human beings.[8]

Efforts for a Nuclear-Free Pacific

The tragic consequences of U.S. nuclear testing and the impact of military expansion in the Pacific lies in marked contrast to the official mandate of the UN Trust Agreement. The repeated insensitivity to the rights and needs of the people of the Pacific serves as a stark reminder of the economic and social costs of the arms race. But because the Marshall islands have served as a major staging ground for a tremendous buildup in U.S. conventional and nuclear forces, they also hold significant potential in resisting the militarization of the larger Pacific region.

In recent efforts to secure self-determination, the people of the Pacific have begun to make connections — recognizing the costs of foreign aid packages tied to military access and bases. People of the Pacific are also recognizing the need to protect themselves from the partisan interests of the Pentagon in its efforts to influence Pacific affairs. At the second international Nuclear Free and Independent Pacific Conference in July 1983, a gathering of representatives from some 33 islands and

nations of the region, resolutions were adoped for a nuclear-free Pacific.[9] The South Pacific Forum held meetings in August of 1983 which resulted in decisive condemnation of France's continuing underground testing program on Mururoa Atoll and agreed in principle to a proposal by Australia to declare a nuclear-free zone in the southwest Pacific.[10]

Although a close ally of the U.S. and member of the ANZUS (Australia, New Zealand and United States) defense treaty, the Australian government has actively opposed continued French testing of nuclear weapons and has been an outspoken critic of nuclear weapons in the region. In July 1983, Australia appointed its first ambassador for disarmament and announced its intent to take the lead in trying to force an end to France's nuclear testing program in the South Pacific.[11]

In New Zealand, residents have actively opposed nuclear weaponry and about 80 percent of its districts have declared themselves nuclear-free zones. On November 9, 1983 about 100 small boats tried to block an American nuclear-powered submarine from entering Auckland harbor for a five-day visit. In April 1982, a bill to ban all nuclear weapons from New Zealand and its territorial waters was defeated by only one vote.

Despite determined interference, the Republic of Palau has adopted the first nuclear-free constitution in the world and has been able to resist U.S. attempts to transform 30 percent of its islands into a military installation in 1972. Learning from the experience of the Marshalls, Palau has consistently resisted U.S. pressure to allow transport and storage of nuclear weapons on the islands (See Box).

The small Republic of Palau (also known as Belau) is the first nation in the world to become a nuclear-free zone, barring nuclear weapons and materials from crossing its borders. But this constitution has been threatened by continued U.S. pressure to allow military bases, nuclear weapons, and nuclear wastes on its territory. Located about 500 miles east of the Philippines and close to Asia, the islands are considered by the U.S. to be strategically important. The Pentagon would like "options" to use the land for: a 30,000 acre jungle warfare training base, occupying one third of the main island Babeldoboab; a 2,000 acre nuclear and conventional weapons storage base; rights for transit and overflight of nuclear aircraft and vessels, including the expansion of two airfields for use by the U.S.; and exclusive use of a portion of Malakal harbor for possible servicing of Trident nuclear submarines. The U.S. proposed in 1972 to obtain military use of 30% of the islands.

In July 1979, the people of the islands of Palau overwhelmingly approved its constitution, with 92% in favor of the constitution's article proclaiming the island and surrounding waters a nuclear-free-zone. The constitution specifically forbids the storage, testing, use, and disposal of any nuclear material unless it is specifically approved by 75% of the voters in a special referendum. The U.S. State Department has repeatedly found the constitution "incompatible" with U.S. strategic interests and the Compact of Free Association which is under negotiation. In two subsequent elections, necessitated by U.S. objections to the nuclear ban and other provisions, the Palauans rejected the revised constitutions – drafted by the U.S. to omit the 'objectionable' nuclear-free and sovereignty provisions – by 70% and 78% majorities. Palauans also voted out of office most of the legislators who had supported the U.S. position.

Despite the virtually unanimous support expressed in these three referenda, the U.S. still insists on complete defense authority over the islands. The U.S. has largely withheld comment on the latest vote on the Compact and it is not clear whether it will wait until after the U.S. Presidential elections to press for passage of the Compact.

In any case, despite official denials, it appears that the U.S. actively interfered with all aspects of the referendum. A Palau Supreme court ruling declared the ballot wording misleading and illegal just 10 days before the plebiscite, due to U.S. pressure to conform the Compact to its preferred wording. The original ballot, as drafted by the Palau National Congress, "was rejected outright by the U.S." and State Department Ambassador Fred Zeder, in a November 11 1982 cable, instructed the Palau Government to change the wording.

Over $439,000 was appropriated for a "voter education" program which degenerated into a pro-Compact campaign. This should be compared to the $400,000 recently spent by El Salvador's electoral commission, with $240,000 being directly allocated from the U.S. Yet, the people of El Salvador number 5 million, while the total population of Palau is 15,000. The so-called political 'education' campaign about the Compact became a one-sided promotion of the document; a "People's Fact Sheet" distributed to residents stated all the benefits of the Compact, excluding any drawbacks.

Meanwhile, six Senators in Palau's National Congress have filed a suit requesting that all absentee ballots be declared invalid due to "numerous irregularities" in the conduct of the absentee vote. The suit cites the possibility that non-voters may have voted, and, more importantly questions the validity of printing 16,000 ballots for the Island's roughly 7,000 voters.

In February 1983, Palau residents voted to accept a Compact of Free Association with the U.S., but did not approve a measure which would have waived the ban on nuclear material and other hazardous substances in the country's constitution. Without the waiver, U.S. nuclear-powered ships can not use Palau's ports, and more importantly, the U.S. will not accept the Compact. The U.S. is now negotiating with the Palau government for a compromise which will probably be reached at the end of the year.

Future U.S. military plans anticipate increasing militarization of the Pacific. Beyond military bases and the testing of strategic weapons, Micronesia is considered by the Pentagon as a strategic fallback to bases and installations in the Philippines. The Compact of Free Association does not alter the continuing domination of the Pentagon in influencing the political and economic future of the region. Furthermore, Kwajalein is slated for a new generation of anti-ballistic missile tests, and other "star wars" systems. The island of Roi Namur on Kwajalein Atoll is the site of a major anti-satellite detection facility, making it a significant military target in the event of a nuclear attack. The U.S. is even still negotiating with the Government of Palau to modify its nuclear-free constitution to allow for port visits of ballistic missile submarines, possible dumping of radioactive wastes, and storage of nuclear weapons. Given the record of U.S. willingness to place strategic interests above the well-being of the native populations, the people of the Pacific clearly have good cause for concern.

International press and public have been indifferent or at best unaware of the gravity of this situation. The tragic history of removal of people from their lands, the devastation wreaked by testing of nuclear weapons, and the ongoing racist policies and interference by the U.S. continue to go unrecognized. The Marshallese and the rest of Micronesia have indicated repeatedly that they would like to remain on friendly terms with the U.S. but would like greater respect for their right to self-determination. It has been in the interest of the U.S. to foster dependency and a sense of helplessness. The U.S. has used the threat of ending economic aid to the islands as leverage for bargaining with Pacific governments. Steps need to be taken to channel aid into programs which help to develop greater self-sufficiency based on the culture's needs, not dictated by military plans to expand U.S. presence in the region. In the words of the head of the UN Trusteeship, the islands have been looked upon as "anchored aircraft carriers" for superpower intervention. Yet there is still time to stop this tragic waste of human and economic resources.

The concerns of the Pacific peoples are inherently linked to the European and American peace movements in their efforts to challenge the escalation of the arms race to yet another arena for potential conflict. Achieving a nuclear-free and independent Pacific before the region is completely mired in the complexity and perversity of entrenched military ties and dependency for "protection" would provide a much needed impetus for other regions in the world, sending an important message that people are no longer willing to entrust their survival to the hands of superpower nuclear weapons. The recent efforts in Micronesia are small yet significant steps towards this end. □

REFERENCES

1. This quote and much of the information in this article derives from an interview with Darlene Keju, a native of the Marshall Islands, and her husband, Giff Johnson, an American journalist. Darlene Keju has been active in anti-nuclear and independence issues for a number of years. She received her masters in Public Health from the University of Hawaii and has served as a translator and political educator throughout the Marshall Islands. Giff Johnson writes on the subject of the militarization of the Pacific and has published in *The Nation, The Bulletin of Atomic Scientists, the Progressive,* among others. Both are actively involved with the Pacific Concerns Resource Center in Hawaii (P.O. Box 27692, Honolulu, HI 96827). The couple travelled across the U.S. in March 1984 speaking on the human and health costs of nuclear testing, and U.S. foreign policy in the Pacific.

2. "From Trusteeship to. . . ? Micronesia's Future." Micronesia Support Committee Analysis of the Compact of Free Association. Available for the Nuclear-Free Pacific Network, 942 Market St., Rm. 711, San Francisco, CA 94102, (415) 434-2988.

3. Robert Trumbell in the *New York Times, 9/6/82.*

4. The annual U.S. contribution for use of the missile range since 1979 is $9 million (breaking down into about $5 million as a direct transfer of funds, $2 million in economic development programs for Kwajalein Atoll, $1 million in Federal programs and services and $1 million in Marshallese taxes on range operations). This money is provided to the government of the Marshall islands, and the U.S. refuses to negotiate directly with the landowners. See Noel Koch, Principal Deputy Assistant Secretary of Defense, letter to the Editor, the *New York Times* 9/13/82.

5. John Wilford Noble in the *New York Times*, 3/15/81.

6. "Marshall Islands, a Chronology: 1944-1983," Micronesia Support Committee.

7. Ibid.

8. Ibid. Brookhaven National Laboratory, 3-year report on Rongelap and Utirik.

9. "Nuclear Free and Independent Pacific Conference – 1983 Report" Booklet available from Pacific Concerns Resource Center.

10. Philippa Murray in Hong Kong AFP 8/29/83, in Foreign Broadcast Information Service – Asia and Pacific.

11. Nonetheless, Australia continues to allow the U.S. relative autonomy over its military operations at Pine Gaps, one of the largest overseas U.S. military intelligence gathering installations in the world. The government has granted the U.S. extended use of its airspace by B-52 bombers on navigational training flights from Guam [Reuters in NYT 10/17/82] and the decision to allow nuclear-armed ships to enter Australian ports has raised tremendous controversy.

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HYDROELECTRICITY vs. THE CREE IN JAMES BAY, CANADA

Akwesasne Notes/cpf

by Carol Cornelius Mohawk

Editor's Note: *In 1971, Phillip Awashish, a Cree Indian, read of the launching of a massive hydroelectric project in his homeland, the James Bay region of Northern Quebec, Canada. It was in this way that the Cree learned of a plan, already underway, to flood the forests and lakes of their own territory through a dam of the rivers where they lived; no prior notification was given. After organizing, and taking the case to court, by 1975 the Cree struck the best deal they felt they could, signing the agreement described below. Shortly thereafter, construction began on this massive project which is now completed. As the following article describes, it is a project which left many scars.*

Carol Cornelius Mohawk is an associate editor of Akwesasne Notes. She is a Stockbridge/Oneida from Wisconsin and has written on a variety of Native American issues including nuclear wastes, environmental issues, fishing rights, etc. She is also a journalist for the recently-formed Indigenous People's Network.

It is hard to express. When I first saw where the water used to be and it's all dry land now, and where trees used to be and it is all covered by water now, it really affected my sense. I don't know if you understand me—something good inside you dies, you lose your innocence. It affects your identity, who you are and where you belong. . . . In Cree everything is connected somehow, man's [sic] *spiritual bonds with with the environment. You are subtracting something very special away from you, something very deep down, for no longer are you who you were before."*

—Walter Hughboy
Chief of Wimindij

Until 1975, the Cree people of northern Quebec, Canada, led an isolated, self-sufficient life. Hunting, fishing and trapping provided their economic base, as well as a spiritual way of life. "We perform native ceremonies when we conduct the traditional way of life within the Cree traplines. . . . Life in the bush—the way of life and religion—are one. Therefore recognition of the hunting, fishing and trapping rights of the people is also a recognition of the religious, the spiritual well-being of the Cree Nation," says Phillip Awashish, Cree from Mistassini, Quebec.

In 1975, in what is known as the James Bay and Northern Quebec Agreement (JBA), the Cree people signed away their aboriginal land rights to 400,000 square miles of land in exchange for $225 million to be paid over 21 years. In addition, the Cree people were promised retention of some hunting and fishing rights, and a guarantee of improved housing, water and sewage systems, as well as health services.

Most people take for granted that they will have good, clean water to drink, adequate housing and sewage disposal, and health care. But since their lifestyle

cpf

has been dramatically affected by the JBA, these life-sustaining necessities are not available to many Cree people. Bob Epstein, an advisor to Cree Grand Council Chief, Billy Diamond, says: "If they were ever to do a study of Indian health—I mean the real thing—you would find that Indian health in Canada, not just in Quebec, is an atrocity." In a telephone interview, Mr. Epstein reported finding diseases thought to be extinct, such as tuberculosis, to be common in this remote area.

During the spring of 1980, eight Cree children under two years of age died from gastroenteritis, a stomach disorder resulting in severe diarrhea leading to dehydration, and often death. A closer look at water availability, sewage disposal and health care in three Cree comunities will illustrate how these health problems occur, and why the Cree insisted on adequate services within the JBA.

Fort Rupert

The village of Fort Rupert, where 140 Cree families live (1,100 people), is accessible only by air transport. During 1980, 85% of the children under two years of age in this village had diarrhea and one child died. Water for this community is drawn directly from the Rupert River. It is then chlorinated and stored in a 200 gallon tank. The people of the village carry this water to their homes, storing it in plastic garbage cans. Water stored in this manner loses its drinking quality. Further investigation reveals that the water is of questionable quality even when it is taken from the Rupert River, since raw sewage is pumped into the Rupert River about 250 meters upstream from the water intake pipe for the village.

Wastewater and septic systems for this Cree community consist of dry-pit toilets with drainage ditches. These pits often overflow and drain into ditches and low points in the village. The Fort Rupert school, clinic, air service and Catholic mission each dump their wastes into a ditch that runs through the village. Daniel Berrouard, biologist, reports:

> The village is crisscrossed with ditches draining runoff water, including, of necessity, untreated wastewater. An enormous ditch about four meters wide cuts across the entire village. It was dug in 1974 when installation of the sewer and water supply system was being envisioned. Today it is apparently a favorite playground for the children. This environment is not only dangerous during heavy rains, but also acts as a haven for insects and micro-organisms during the summer when water in it is nearly stagnant.

Nemaska

The Cree village of Nemaska has no access roads and is also inaccessible, except by air or motorized canoe. The 35 families there (about 200 people) live in tents. Their only source of water is a surface well in the center of the village from which they carry water to their homes. This well is severely contaminated. They also use dry-pit toilets. As the January 1982 issue of *Ontario Indian* reported, of the figures for 1981: "Four children were born that year and four children died. Thus an entire generation was eliminated . . ."

Mistassini

During February 1981, an investigation was conducted of a tuberculosis (TB) epidemic in Mistassini. The resulting report discusses the effort to catch up with "the burden of chronic disease which exists in the area."

During the twenty months preceding, and including this study period, there were seven active cases of TB found in children, and two in adults. There were also dozens of children with positive TB tests who required treatment. The report states, "There are large numbers of adults walking around with untreated or partially-

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treated TB which could reactivate at any time. Housing conditions are still crowded and sanitation poor." Malnutrition was also found in this community, and, as in Third World countries, the use of infant formula, coupled with a contaminated water supply, has resulted in gastroenteritis among young children.

The clinic at Mistassini has three full-time nurses. It lacks a full-time doctor and adequate emergency medication. The doctors involved in the study agreed that adequate preventative screening measures, i.e., skin tests and chest x-rays for TB, are not conducted on an adequate and consistent basis: "There has been no sys-

tematic screening for TB in Mistassini since 1974-75."

Availability of doctors for the Cree people is inadequate. In Chibourgamau hospital, three physicians provide health care for 14,000 people. One doctor found pneumonia, perforated eardrums, and chronically draining ears among the Cree. He made reference to a 1978 whooping cough epidemic and a 1980 measles epidemic, and found that only 10% of children between ages newborn to five years had adequate immunization. While the nurses in these villages do a commendable job, considering the working conditions and lack of supplies, there exists a critical need for more doctors in the James Bay area.

Impact of the James Bay Agreement

The failure of the Canadian government to properly implement the James Bay Agreement has been serious, indeed deadly, for the Cree people. To understand their present living conditions, one must first consider the dramatic changes in environment and, therefore, lifestyle brought about by the implementation of this plan.

Prior to the flooding of their lands, the Cree people lived a life of hunting, fishing, and trapping. They often spent seven months each year out in the bush or in isolated hunting camps. There, they were not confronted with contaminated drinking water, sewage disposal, or drainage ditches. Life was clean, healthy, environmentally sound, and self-sufficient.

It is only since the signing of the James Bay Agreement, in which large portions of their hunting and trapping territories were flooded by the hydroelectric project, that the Cree people were relocated to so-called "small towns." These towns were constructed hastily without running water, proper septic or sewage disposal. This was a difficult transition for the Cree people. Today, they are advised to boil their drinking water for 20 minutes before using it and they are asked to use "honey bags" to dispose of wastes. They have been forced to make a transition from a clean lifestyle in the bush to a lifestyle of contamination and poor health in these small towns. Adequate health services are severely lacking.

Phillip Awashish, the first Cree to hear of the James Bay hydroelectric project, states: "We took the initial position that we should stop the hydro project because it was encroaching on the rights of the [Cree] people. It was threatening a way of life by causing negative impact on the environment and the resources." According to Awashish, for the Cree people the agreement was an acceptible one, partly because it recognized, for the first time in their history, the use and occupation of the territory by the Cree Nation.

As he continued: "We feel that in the long run the hydro project was inevitable, with or without the land claims settlement. The federal government could simply extinguish rights, claims, and interests Native people have within the territory of James Bay. No government was willing to stop the hydro project. The Cree Nation recognized that fact. Therefore, we had to negotiate, in our view, an agreement which would attempt to meet the needs and aspirations of the Cree Nation. . . . At the time I signed the Agreement, we were satisfied with it. Today we wonder if we would have signed it, taking into account the interpretation and the attitudes of the governments which should have honored the Agreement."

In September 1980, the Cree made a request of the federal government for the $1 million needed to improve health conditions in Nemaska and Fort Rupert. The request was denied because it was too costly. The Cree spent $1 million of their settlement monies from the James Bay Agreement to provide emergency health services and another million to provide clean water to stop the gastroenteritis epidemic. The Cree bought and sterilized water containers which were delivered to homes with potable water. This, plus rebuilding outhouses, helped to improve conditions enough to stop the epidemic.

The monies used to halt the epidemic were taken out of the Cree economic development fund.

The Grand Council of the Crees and Inuit then began an intensive publicity and lobbying campaign to bring to the world's attention the failure of the James Bay Agreement. On July 8, 1982, after many months of intense negotiating, the federal government allocated $61.4 million to be paid over a five-year period to construct Inuit schools and housing, Cree sanitation facilities, electrical service and housing, and to repay the Cree for their health care expenses. The critical factor

involved in obtaining these funds was the intense use of publicity by the Cree people. One must conclude that if the Cree had not used their economic development monies to provide clean water, Cree babies would still be dying.

Failure of the Health Provisions of the JBA

The Cree have strongly stated their position on health care provisions in the James Bay Agreement: "The primary purpose of section 14 [of the JBA] was, in the view of the Crees, to establish a Cree run health care system, operating through the Cree Board of Health and Social Services . . . the Health Board has not been given the authority or funding necessary to fulfill the aims of Section 14." The Cree contend that two major issues are at the root of their current health problems: lack of adequate housing and sanitation services as provided for in Section 28.11.1 of the Agreement, and the failure of Canada and Quebec to fulfill the provisions of Section 14 dealing with the delivery of health care services.

The federal government of Canada relinquished the responsibility of health care for the Cree and Inuit to the Province of Quebec. The Cree expressed a wish to continue federal assistance in health services through funding, but the federal and provincial governments rejected the idea of joint federal-provincial involvement. In fact, the federal government said that, "Canada is not in a position to determine whether Quebec is adequately performing the duties they took from Canada."

On May 27, 1981, the Toronto newspaper, The *Globe and Mail,* reported that a parliamentary committee had directed Health Minister Monique Begin "to convene discussions involving herself, Indian Affairs Minister John Munro, Quebec Social Affairs Minister Pierre Marc Johnson and Cree health officials to unravel the tangle of jurisdictional and financial problems that are plaguing the delivery of basic services to the natives."

Monique Begin has held that she can do nothing, except as a consultant, because health care has become the responsibility of the Cree Health Board and the Province of Quebec as of April 1979, under the terms of the James Bay Agreement. Housing, sewage and garbage are the responsibility of the Department of Indian Affairs and Northern Development of the federal government and environmental concerns are addressed by the Province of Quebec. The *Globe and Mail* further stated: "Jurisdictional jockeying has left the Cree with what Miss Begin agrees is poor sanitation and housing, which have contributed to incidents of stomach disorders and even deaths among the Indians in the James Bay area."

The Future of the JBA and Similar Projects

The Cree negotiated the James Bay Agreement in good faith, despite the fact that when the original plan for the huge James Bay hydroelectric project was announced the Cree had not been notified or consulted, despite the fact that this project would affect their lives in an irreversible destructive manner.

When asked his view of the impact of the JBA agreement, Phillip Awashish commented,

> hydroelectric projects are constructive or destructive according to one's point of view. For the Cree hunters, trappers, and fishermen, all hydro projects are destructive. . . . The hydro project has brought about environmental changes to the Cree traplines. Some of these traplines exist as such, but they are now under water. Some of the Cree people have forever lost traplines. We have always used the territories, the lands. Now that the lands are flooded it means we have to use whatever lands are left. It means reorganizing the traditional trapline territories. We feel at the present time, the land and its resources, its wildlife resources, are under a lot of pressure both from the use by the Native peoples and from the pressure the land experiences from environmental changes caused by developments such as the hydroelectric project. We hope that the land itself will bear with us, that the earth itself will bear with us, that it will continue to provide for the needs of the Cree Nation.

It has been reported there are plans to develop two massive hydroelectric dams in Dene territory in northwestern Canada. One is slated for the Slave River in Alberta, and the other project, in British Columbia, involves two large dams on the Liard River. These dams would flood 1,060 kilometers of land. The outcome of the James Bay Agreement is especially significant when future plans include building more environmentally devastating hydroelectric dams, and making questionable contracts, such as the JBA, with Native peoples. Must history repeat itself?

The evidence is in. In keeping with the Cree philosophy, while water is essential to the earth, animals, and water life, the climate and human beings, electricity is not. Water supports life. When we view the effects of hydroelectric dams, ranging from the Cree territory of northern Quebec to as far south as the Native peoples lands in Brazil, a pattern of destruction emerges. It is a pattern of encroachment and disruption of native life imposed by western technology. To destroy a people's ecology and economy is to destroy them as a distinct people. If we are to reverse this trend, we must learn to value human life and the earth above our need for electricity. □

continued from p. 11

to why they are being pushed. This would seem to be entirely a political matter taking advantage of the cold war posture of President Reagan and his conservative advisors, aided and abetted by the dogmatic application of the doctrine of deterrence and the flow of propaganda about Soviet Military superiority in the direction of chemical weaponry. In this favorable ambience, the binary program has not only permitted the rebirth of chemical warfare but has contributed to slowing and stopping the progress towards a chemical disarmament treaty much as the administration position has reversed the progress from the Salt era.

The binary weapons, as noted, are not a "better" nerve gas weapon. They have never been field tested and show a number of other serious drawbacks. First, binaries carry a smaller payload of agent than direct weapons due to the space taken by by-products and accessory chemicals. Second, all binaries so far considered have properties which give away their presence and render surprise difficult. In contrast the "pure" nerve gases are odorless and give no warning effects. The warning effects of binaries are enough to permit action towards antidotal neutralization as well as protection and could trigger a like response before significant incapacitation occurred. In addition, the nature of binaries places special limitations on targets and munitions. Targets significantly closer than the time required for a complete reaction would be excluded as, for example, simple delivery by low flying aircraft.

Thus from a weapons technology point of view, binaries are not particularly advantageous and present liabilities as compared to the original weapons they are intended to replace. Operationally, however, the binaries offer a key compensating advantage: they can meet public objections as to manufacture, shipment and storage in the urban context. They can be as far forward and as completely integrated into munitions stockpiles as are conventional munitions and more so than can tactical nuclear weapons.

In additon to these technological limitations, there are also specific dangers resulting from greater safety of binaries. Currently, nerve gas weapons are handled as "special" ordinance, subject to special regulations as to deployment and use. With binary weapons, this authority could now pass to field commaders. At the very least, the control of binary nerve gas weapons would be relaxed; this, coupled with their more complex nature, will increase the risk of accidental as well as unauthorized use of the weapons. Thus, the easier availability and the greater safety of the binary weapons replaces one set of dangers with another set.

Irrespective of whether like-with-like deterrence is a sound approach, CW binary armaments present several additional strategic difficulties. Specialized technology and requirements for technically advanced control and safety systems place the production, storage and deployment of nerve gases beyond the capability of many nations. The total technology involved in binaries is far simpler, and therefore is accessible to many countries otherwise incapable of manufacturing nerve gases. If the major powers make binary nerve gases a component of standard armaments, many countries will be under pressure to follow this lead and develop retaliatory capacity. This proliferation greatly increases the risk of either the intentional, unauthorized or accidental use of nerve gases. The proliferation capabilities and stockpiles for binary weapons would also make for a considerable increase in the possibility that criminals and terrorists will use these weapons as means of blackmail. Thus, the very reasons of safety and economy which make binaries appear so desireable to DOD also increase the risk that nerve gases will be used, thereby significantly reducing the advantages of binaries over direct weapons.

Accusations Fly: The Current State of CBW Negotiations

Talks on chemical disarmament have proceeded in phases; in the first phase the UN committee separated C & BW; this decision was followed by the 1972 BW convention. The second phase ended when the U.S. and USSR substituted bilateral talks for the UN Conference Committee on Disarmament, which commenced in 1976. In 1977, the Carter administration worked out the basis for a treaty. Although this led to many reports of progress, substantive issues were not fully resolved before the Reagan administration took over.

The negotiations had a very ambitious objective which was complete disarmament followed by no rearmament, so the treaty had to eliminate existing capability and preclude future capability. Two major questions are involved: first, which weapons are to be eliminated and/or precluded and second, how destruction and non-production would be verified. At the time of discontinuance of bilateral talks, progress had been made in the verification area, with acceptance by both parties of the idea of on-site inspections after challenge and with the definition of some of the information activities of the national control organs. However, just as this progress towards a comprehensive treaty was being achieved, the U.S. DOD and to an unknown extent the Soviet military sought to integrate CW weapons into military doctrine and posture, making conclusion of the treaty more difficult.

The difficulties in the negotiations have been compounded by the increased flow of reports, evidence and opinion that the U.S.S.R. is making significant use of CBW in both Southeast Asia and Afghanistan. The most notorious of these uses is the "Yellow Rain" situation in Afghanistan and Cambodia-Laos. The bulk of the U.S. evidence has been presented as coming from S.E. Asia and includes specimens of "Yellow Rain,"

reports of aerial attacks and analysis of biomedical samples of blood and autopsy materials. The symptomatology of the attacks is not inconsistent with tricothecene poisoning but some or all of these same symptoms may be presented by malarial attacks, multiple vitamin deficiencies, leukemia and other diseases. Frequently, the symptoms are sufficiently delayed after the attack so as to be unlikely considering the rapid action and elimination of the toxin (within 24 hours). The blood samples show similar problems. High blood contents have been observed 60 or more days after the attack; if they reflected the terminal retention of the mycotoxin dose, they would have had to be a supra-lethal amount. Furthermore, analysis of the level of mycotoxins in the "Yellow Rain" bee feces, which may be a natural phenomenon also, suggests that an effective attack would require the aerial dispersal of tons of Yellow Rain over a small area. Thus, the actual occurrence of mycotoxin warfare appears dubious at best and highly unlikely at worst. Furthermore, the scientific evidence marshalled by the government is flimsy and inconsistent, contains patently wrong statements and inadequately thought out explanations. Finally, there are serious questions as to why any government would choose so ineffective a weapon of biological warfare when many much more effective and insidious means are available. The evidence for chemical and/or biological warfare in Afghanistan is just as ambiguous and even more limited.

Apart from the charges against the Soviet Union, two other cases of purported CBW use (both cited at the beginning of this article) need to be considered. The first is the Cuban charge of CIA contamination of Cuban towns with Type II Dengue fever through mosquito vectors. Cuba reports that there were as many as 300,000 cases of this debilitating type of hemorrhagic fever with a large number of deaths at the heights of the epidemics. Cuban health authorities contend they have done the necessary serotyping and proven this is Dengue Type II. This is important because Dengue II is rare in the Caribbean and the hemorrhagic variety is unknown in Cuba. Independent verifications of this by Western world scientists have not yet been furnished although the adequacy of Cuban laboratory procedures is generally acknowledged. If, in fact, the outbreaks were Dengue Type II, this does present an unsolved mystery as to the origin of this highly infective hemorrhagic strain.

The most recent report of the use of chemical weapons comes from the Iran-Iraq war. There the Iranians have claimed that Iraq has used mustard and, perhaps, nerve gases against Iranian foot soldiers. Some of the victims have been flown to neutral areas (France) for examination and treatment. As a result there has been verification of the fact that some of the Iranians are victims of chemical burns and intoxication. But even here there was uncertainty at first because of French reports that some of the Iranians received their injuries in a chemical plant fire and/or explosion. More recently, a UN team claims that the victims it examined were suffering from mustard gas attacks. Thus, some sort of chemical agent involvement seems likely but the question arises as to use by whom, in what form and where. These questions arise because any serious nerve gas attack, involving even a small area of bombardment by nerve gas shells, should have produced numerous characteristic casualties in the field, many severely incapacitated victims, and a very large number (relatively) of sickened soldiers. The symptoms are distinctive and unique. How then were the victims restricted to a few moderately to severely incapacitated soldiers? The same reasoning holds for the use of mustard gas; one would have expected an array of victims from those with extensive respiratory and ophthalmologic damage to those sickened and incapacitated by distinctive, wide spread blistering. Were the soldiers victims of experimental attacks by Iraq, were they victims of attacks staged by Iran for propaganda purposes, or have the extents and natures of the injuries been concealed? Unfortunately, at this date these questions remain unanswered. What is certain, however, is that the massive stockpiling of CBW weapons needs to be widely recognized for what it is: a threat comparable to, and perhaps more useable than, the current arsenals of nuclear weapons. Before the situation becomes even more uncontrollable, action needs to be taken to avert this deadly threat. □

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book review

By Charles J. Puccia

Hazardous Waste in America

by S. Epstein, L. Brown, and C. Pope. Sierra Club Books, San Francisco, 593 pp.

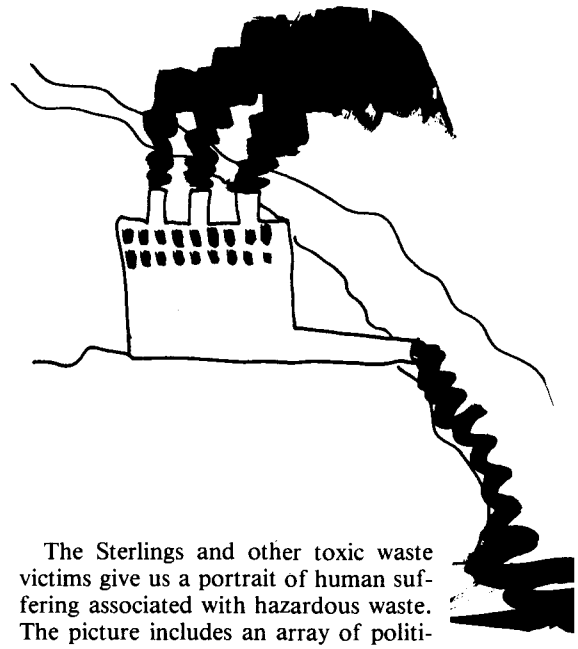
Harmful chemicals exit in our environment, new ones are being added and we should expect to have to do something about these in the foreseeable decades. No narrowly defined, unbiased, scientific study is going to rid us of the unfolding individual tragedies within the widespread chemical holocaust of profit. A study of hazardous waste disposal and its consequences necessarily requires us to consider human feelings, the political, economic and social structure that interacts with chemical substances. A good place to start this study is with the book *Hazardous Waste in America.*

This book has two themes. One contains the logical, crisp, scientific description of chemicals, hazardous waste, the legislative process; the other theme reports people's feelings and ideas. This not only prevents *Hazardous Waste in America* from being pedantic and makes it highly readable, but shows that feelings do matter. The political and economic picture of the hazardous waste problem and what a community should do when suddenly faced with it is, unfortunately, without a coherent analysis in this book; the reader must seek it out, which in a book of this size is a formidable task. The strength of the book may come from the distinctive occupations of the three authors. Epstein is a professor of Occupational and Environmental Medicine at the University of Illinois Medical Center, Chicago. Brown is an investigator for a House of Representatives environmental subcommittee. Pope is associate conservation director of the Sierra Club. But this diversity also proves to be a weakness; what is missing is a common political ideology.

The voices of working women, men and their children expose the tragedy of hazardous waste disposal. Their emotions tell us of the obstacles raised by industry, governments and money. It can not be acceptable that people's lives can be changed forever so others may profit. Once we understand the human misery inflicted on people we may begin to ask questions; the answers that start to come out are very different than if the backdrop is one where there is the pretense that politics, profit, social forces and emotions did not matter.

Consider the winter of 1978 for Christine and Woodrow Sterling. They had no choice but to accept an offer by the Velsicol Company to buy their home and then contract to rent it—no one else would buy their home whose water supply, contaminated by Velsicol chemicals, was unsafe to drink. The Sterlings had nowhere else to go. They had no choice but to accept a check for $1500 to "sign off healthwise" for themselves and their children.

Contrast this dollar payoff with the fact that the Sterlings must live the rest of their lives knowing that for about fourteen years they and their children drank water contaminated with benzene, carbon tetrachloride (CC14), chlordene, chlorobenzene, chloroform and more than half-a-dzoen other compounds. Moreover, just one of the compounds alone, CC14, was found by the EPA in late 1978 to be at concentrations of 4,800 ppb (parts per billion) in the Sterling well—over 48 times the level of CC14 found in a Cincinnati water supply (100 ppb) where residents were warned by EPA not to drink the water; the Sterlings must live with the knowledge that CC14 damages the liver, lungs, kidney and central nervous system. For the rest of their lives the Sterlings are waiting for a carcinogenic time bomb to go off. What do they do if one of their children must wait for death in a hospital ward? With the "concern" of Velsicol at $1500? With the reports of the EPA showing the ppb levels for every chemical in their well water? With legislation produced by a Standing Subcommittee of a Committee of a Government that doesn't care?



The Sterlings and other toxic waste victims give us a portrait of human suffering associated with hazardous waste. The picture includes an array of political, social and scientific elements, which we must begin to learn how to perceive as interconnected and part of our scientific inquiry. I do not have a good prescription to do this, but reading *Hazardous Waste in America* certainly helps. Much of what people say is located in an entire section of the book recording 40 case studies of toxic waste disposal around the country, each one amplifying the experiences of the others but providing a new perspective. The victims of chemical profiteers speak louder than the authors, scientists and lawyers because there is an abyss of inexplicability between the statistics for the likelihood of cancer or organ failure from chemicals, between the lack of legislation regulating toxic waste or legislation that is not enforced and the association with names and events. Seven-year-old Jon Kenny died unexpectedly from chronic nephrosis, a kidney disorder. He lived a few blocks from Love Canal, the dumping grounds of the Hooker Chemical Company. Which of us would be able to explain to the Kenny family why correlation is not causation? Why living

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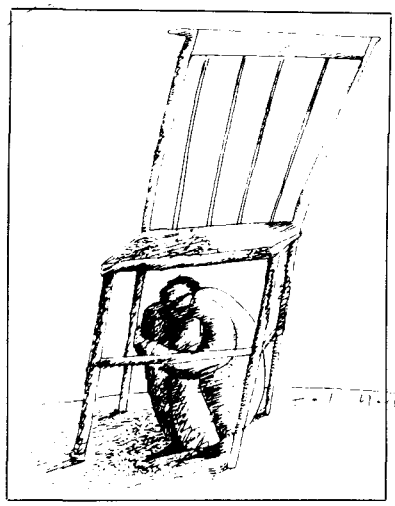
near a dump with toxic chemicals—chemicals that cause nephrosis in laboratory animals—does not prove Jon's illness and death was likewise induced? At the Hooker Chemical Company someone makes these explanations.

The Sterling family suffered from hazardous chemical waste disposal in rural America; Jon Kenny died at the hands of chemical profiteers in urban America. However, it is the story of Love Canal, that infamous section of the city of Niagara Falls filled with the waste of the Hooker Chemical Company, that provides a lesson for both rural and urban communities. The Niagara Falls community forced the government to act; they did not have to go cap in hand to Hooker Chemical; Velsicol got by with $1500 per family, Hooker did not. The people of Love Canal were able to use their collective strength because they were organized.

People can get real aid from federal, state and regulatory officials, something officials may not like doing or are prevented from carrying out within the politics built into agencies. Some of the more obvious lessons for achieving effective community action are: There must be a strong commitment by people to stand together—no individual settlements; a demand for immediate action must be presented to elected officials; publicity and the media must be used to focus on the emotions of the victims, the sorrow, the hurt and especially the anger; government officers and representatives have to be made to feel uncomfortable; people must seek and get the active support of others in communities not directly affected; in addition to obtaining the scientific data from those agencies who have been empowered to obtain the facts, people have to get their own facts, do their own surveys and provide their own subjective evaluation of the data; the people should not abdicate their legal defense to lawyers but consider lawyers their instrument in getting access into the legal system.

But what about the politics and economics of the hazardous waste business? Epstein, Brown and Pope try to face this in a section of the last chapter entitled "The Political Realities." What they provide is a good description of the Reagan administration and the operations of the Executive branch of the federal government. However, Reagan's methods and political philosophy is confused with the structure of power in the United States. The authors ignore the lesson from the previous chapters, which shows all too well that Presidents Ford, Carter and Reagan are interchangeable. Democrats and Republicans always balance "economic realities" against the health of people, maybe shifting the fulcrum a little this way or that, but never abandoning the notion of the fulcrum and the balance. Politics for Epstein, Brown and Pope are the activities of professional politicians and administrators who conduct the business of government within



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an established set of rules. Politics does not take on the meaning of people working together to safeguard their health and right to work for the betterment of life for everyone. This is not to say that the EPA and the various state environmental agencies are useless, because in many cases we would all be a lot worse off without them. The message from the victims of hazardous chemical profiteers is that the politics for the "powerless" in America must be to guard their own health because the government is not committed to do it for them.

Confined by the authors' limited idea of politics, we nevertheless get the very useful chapter "Where Do We Go From Here." There are many excellent suggestions about technical and administrative procedures and policies. It is too easy and simplistic to treat the government as monolithic and scientists within regulatory agencies as a homogeneous group trying to avoid conflict with industry or giving unquestioning support to government policies. The appearance of uniformity is more likely a product of the curbing of power through its political distribution. In this chapter Epstein, Brown and Pope try to suggest how to amend the ability of regulatory agencies to protect communities from mishandling of hazardous waste and diminish future production. They never quite talk about the power of individuals to act for the benefit of people, yet we know that the dedicated, concerned scientist can be crucial. Dr. Frances Kelsey at the Food and Drug Administration saved a generation of young people from severe birth defects by her courage and conviction to prevent the sale of thalidomide. The way to begin to alleviate the hazardous waste menace is stated by James Moorman, former director of the Sierra Club Legal Defense Fund: establish a large number of "gumshoes, cops, hard-nosed investigators who [know] about crime, rather than scientists who [know] about poisons." We might add the clarifier that the crime is corporation-perpetrated crime. In addition, the case studies tell us to arm the citizens with knowledge of corporate policies, political activities and the use of capital in America against the people. The suggestion by Moorman that scientists are not the primary agents in toxic waste abatement is strikingly akin to the suggestion a few years ago by Martin Gardner in *Scientific American* that to demonstrate fakery by clairvoyants, or claims by ESP phenomenists, like Uri Geller, is the job of the professional magician because the scientist is too easily fooled.

The intent of Epstein, Brown and Pope may have been to enlighten the public about what makes waste material hazardous, the years of neglect and unlawful or immoral methods used to dispose of it, which they do, but what they give us is a lesson in capitalist politics at its worst. The capitalist system is at its worst when both illegal and immoral activies are made a standard part of managerial tools to obtain increased profits.

There are toxic chemicals already disposed of in our environment and many more in the marketplace still to be discarded. To leave them in toxic dump sites is unacceptable, to burn them is to pollute our atmosphere, to bury them at sea is to create a future nightmare. We are in this predicament because of at least three erroneous assumptions about chemicals and hazardous waste disposal that enabled the corporate chemical worlds to act without real restraint or culpability. First, there is the belief that a chemical is safe until proven otherwise. Each year some 50,000 chemicals are manufactured in the U.S. with about 20,000 chemical products entering the market (J. Golden, R.P. Ouellette, S. Saari and P.N. Cheremisinoff, eds. 1980.

Environmental Impact Data Book, Ann Arbor Science Publishers, Inc.). There is no easy estimate of how many of these chemicals are hazardous or will be processed into hazardous waste. At the Love Canal site over 250 chemicals were toxic. Even if we allow that the chemicals in Love Canal represent all of the toxic chemicals produced each year, then 1.25% percent of the manufactured, introduced chemicals can cause serious harm and death. Up until now that number has been acceptable. The same number would be intolerable if applied to, say, airline crashes; for every 20,000 commercial flights (roughly the number of daily flights around the world), 250 planes would crash. Every new chemical should be suspect, guilty as a hazardous substance until proven otherwise.

The second assumption which has allowed a hazardous waste fiasco is the belief that someone in the federal, state or local government agencies regulates, monitors, supervises and generally guards the public against the misuse of the production, handling, disposal of toxic substances. We believe our health and environment is safeguarded: by the 1969 NEPA act, by the Resource Conservation Recovery Act (RCRA), by the Consumer Product Safety Act, by the Clean Water Act (TSCA) and the plethora of similar acts on the national and state level. There is no value in any legislative act if it is violated, unenforced, or too late.

Lastly, there is the sweeping presumption that whatever ill might happen "it won't happen here" ("to me"; "to my family"; "in my community"). The risk of exposure to hazardous waste may not be equal for all; just as the mine owner is less likely to contract lung cancer than the pit worker, so too the wealthy suburbs and high class city neighborhoods have a smaller chance of being the site of hazardous waste disposal, especially of clandestine origin. But occasionally the mine owner lives too close to the pit, the wealthy community finds it has a higher incidence of leukemia. Hazardous wastes effect everyone, though the poor are afflicted more often, because chemicals move through the environment both physically and in changing their identity.

Do these three suppositions matter? The answer must be yes, because they determine what we allow the chemical industry and the government to do. Just imagine if people recognized the error of the first assumption; we would see a cry for a Delaney clause for chemical manufacturing—no chemical could be made for entry into the market place until its value had been ascertained beyond just profitability and its toxicity had been determined. Any chemical that is toxic and did not benefit the population in some important and necessary medical or vital industrial or other way would be banned from production. An abandonment of the second presupposition would mean people would both demand more from the government whenever violations took place but in addition would not be so willing to let chemical companies into their neighborhoods or allow the pay-off of reduced tax dollars or an enticement of jobs sound so appealing; the risk of the chemical doing harm when you no longer believe the government has monitored the material quickly looms large. Lastly, once we presume that toxic waste will affect our water supply, our food, our lives we say, "I am not safe until you are safe"; we begin to organize to act together.

It would be marvelous if *Hazardous Waste in America* saw its way into discussion groups of every people's caucus, from women's groups, nuclear disarmament groups, civil rights organizations, unions, and college seminars in environmental courses. But the discussions should not be directed by the format and outline of Epstein, Brown and Pope. The bits and pieces of the book have to be reset to make that mosaic which defines the America of hazardous waste. In the end we must listen to Ann Hills, a Love Canal resident, as she recalled, "One night last winter I looked in on my son. His bed was empty. I looked all over. It was 2:00 A.M. I heard a cry from under the couch. I asked him to come out, and what was wrong. His reply was 'I want to die. I don't want to live here anymore. I know you will be sick again and I'll be sick again.'" When it is our turn to come out from under the couch will we say we don't want to live here any more? Let's hope enough people read *Hazardous Waste in America* and consider the emotions of the people in the book, along with the politics, economics and the chemicals of the hazardous waste problem, so we will say we don't want *them*—the corporate polluters—to live here any more. □

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DISARMAMENT

Toward a Nuclear Free Future: A Guide to Organizing a Local Nuclear Free Zone Campaign, a booklet produced by Mobilization for Survival, 853 Broadway, Room 2109, New York, NY 10003, 42 pp., $5.00 each, $2.50 for 10 or more.

What About the Children? The Threat of Nuclear War and Our Responsibility to Preserve this Planet for Future Generations; produced by Parents and Teachers for Social Responsibility, Inc., Box 517, Moretown, Vermont 05660, 1983, 14 pp., $1.00. A booklet designed to stimulate global understanding about the threat that nuclear war poses to children.

Armaments: The War Game, produced by Document Associates, The Cinema Guild, 1697 Broadway, New York, NY 10019. A 16mm, 18 minute film discussing U.S. plans to turn the job of launching a massive nuclear retaliation strike over to computers. Rental is $50; purchase, $330.

The Nuclear Arms Educational Service (NEAS) is a nonprofit, nonpartisan research organization. NEAS provides the following resources: An Arms Control Telephone Directory ($5 each), Master Mailing List ($10 each), and Candidate Fact Sheets ($.25 each). From: NEAS, P.O. Box 11002, Stanford University, Stanford, CA 94305.

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LABOR

Labor Notes, P.O. Box 20001, Detroit, Michigan 48220. Phone (313) 883-5580. A newsletter published monthly by the Labor Education & Research Project. Subscriptions: $10 per year.

Workrights, by Robert Ellis Smith. E.P. Dutton, publisher, P.O. Box 8844, Washington, D.C. 20036, 1983, 267 pp., $8.95.

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CENTRAL AMERICA

Target Nicaragua: Inside a Covert War, produced and directed by Saul Landau, a Stichting Derde Cinema Production. A 40 minute film reporting on the covert war carried out by the CIA against the Sandinist government of Nicaragua. Rental fee: $60. For additional information contact Penny Bernstein, (212) 226-8097, at New Time Films, Inc., 74 Varick Street, Mezzanine B, New York, NY 10013.

Nicaragua Information Center, P.O. Box 1004, Berkeley, CA 94701. Publish a quarterly journal concerning Nicaragua; one year's subscription is $10.

Central American Women Speak for Themselves – a resource by the Latin American Working Group, 80 pp., photos. Send $7.00 (plus 20% postage and handling) to LAWG, P.O. Box 2207, Station P, Toronto, Ont. M5S 2T2.

Health Care in Nicaragua: "Revolucion es Salud," a 23 minute slide-tape program sketching the public health conditions facing the Sandinista government. Rental is $15, purchase, $50. For information contact: Medical Aid to Nicaragua, P.O. Box 796, Astor Station, Boston, MA 02123.

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MILITARIZATION OF THE PACIFIC

US Nuclear Free Pacific Network, 942 Market St., 711, San Francisco, CA 94102; (415) 434-2988.

Pacific Islands: Health Effects of Colonization & Militarization. A Global Health Report available from Global Health, Development Education Centre, 427 Bloor Street West, Toronto, Ontario M5S 1X7. Publish a regular newsletter with news about health resource centers.

BOOKS

Military Expansion, Economic Decline, The Impact of Military Spending on U.S. Economic Performance, by Robert W. DeGrasse Jr., Council on Economic Priorities. Published by M.E. Sharpe, Inc., Armonk, NY, 1983, 248 pp.

Machina Ex Dea, Feminist Perspectives on Technology, edited by Joan Rothschild, University of Lowell. Pergamon Press, Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, 1983, 264 pp., $10.95.

New Directions for the Disarmament Movement, edited by Michael Albert and Dave Dellinger. South End Press, 302 Columbus Ave., Boston, MA 02116, 1983, 365 pp., $8.00.

Resources is compiled by Wendy Dunne.

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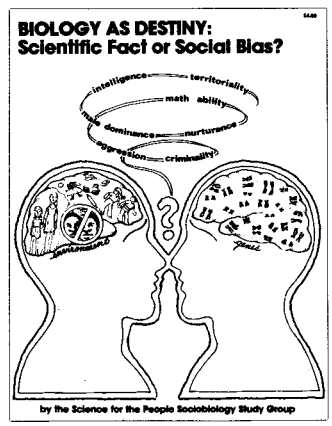

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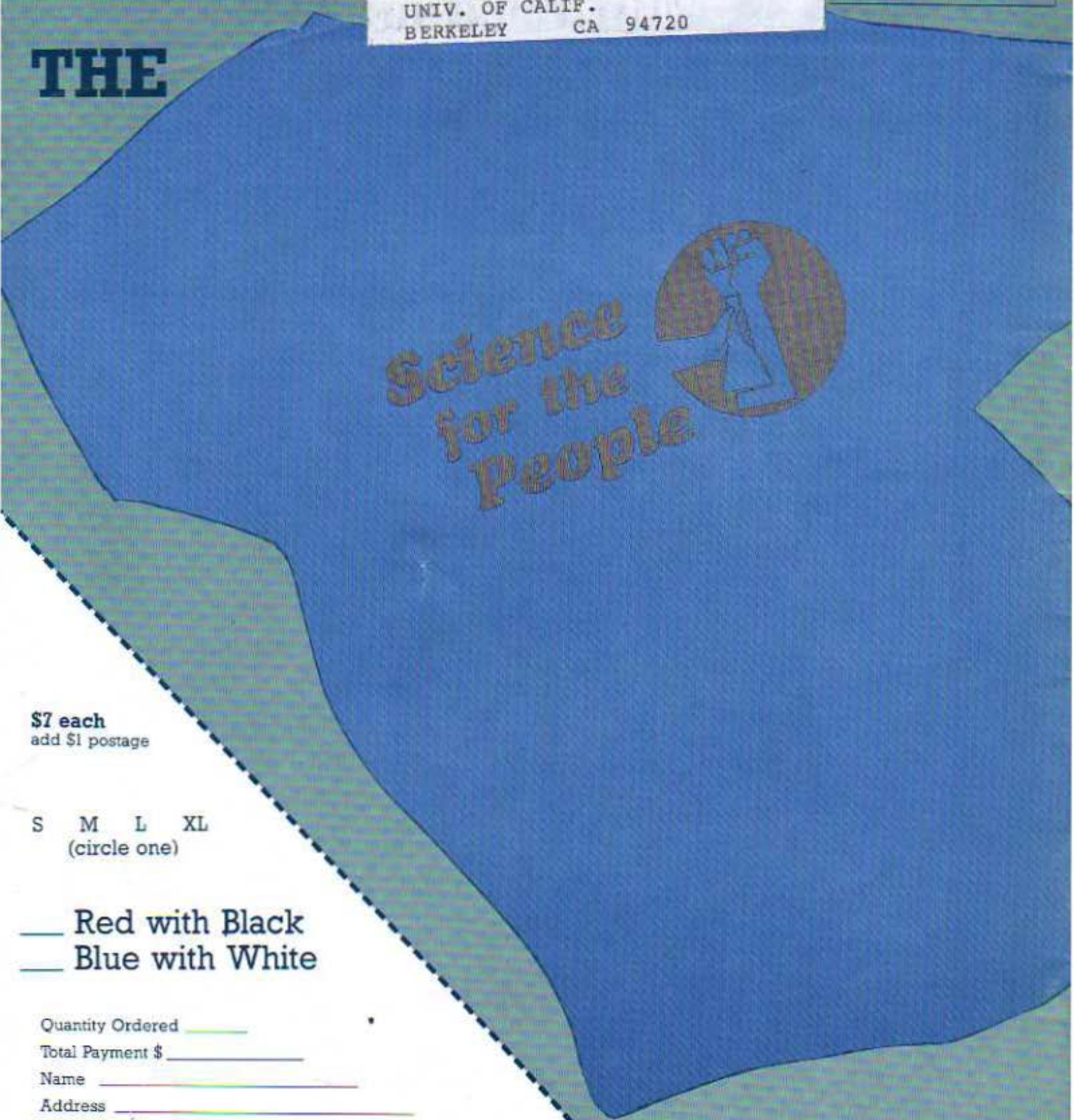

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