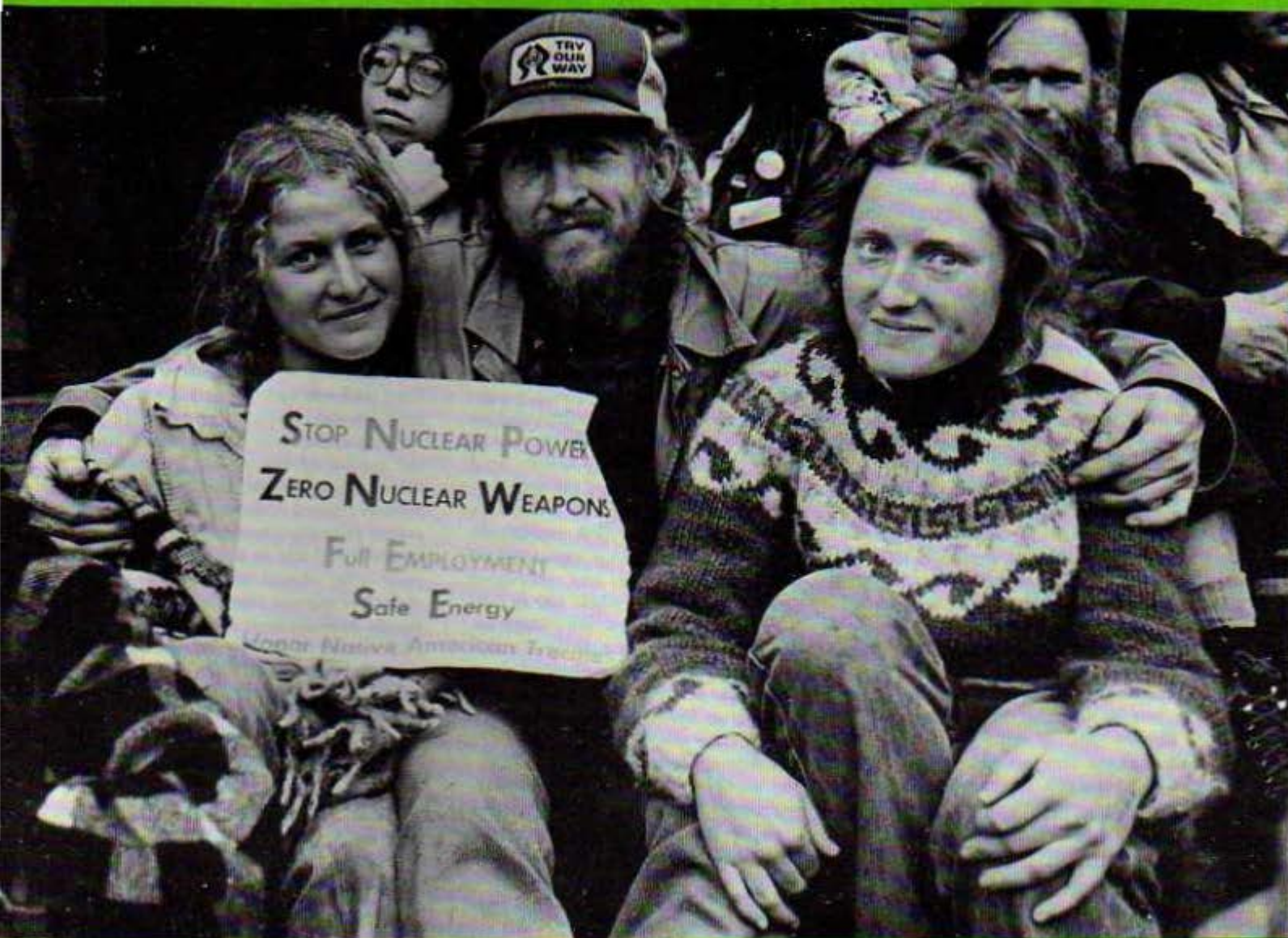


SCIENCE FOR THE PEOPLE

Vol. 12 No. 4 \$1.50

July/August 1980

The Anti-Nuclear Movement: An Analysis



Ellen Shust

The Pesticide Connection
Eugenics to Population Control
Organizing for Job Safety

letters

Dear SftP:

The article "Nonionizing Radiation: Unsung Villian?" by Ross Flewelling (March/April 1980) is extremely misleading and basically inaccurate in terms of health damage reasonably expected from nonionizing radiation, i.e. microwaves and infrared. The gross errors involved in that article are errors of omission rather than commission.

Omitted pertinent facts are the nonionizing radiation a person receives from bright sunlight which is about 100 mW/cm² and is very nearly identical to that which a person receives taking a hot shower or bath. Referring to Table 2, it is true that a few people will die from a one hour exposure to bright sunshine and a few men will receive testicle damage from taking a hot shower or bath. However, the number of people in these categories is quite small, and certainly it is misleading to imply that heat restrictions for these few very sensitive people should be generally applied to the population as a whole.

We have been living with quantities of nonionizing radiation far in excess of present equipment radiation since the beginning of human existence. There is no argument that excessive heat can cause damage: people must be careful of the amount of time they receive diathermy treatment; people should never stand directly in front of a high power microwave antenna; and people should never look directly into bright sunlight. Beyond dealing with these types of microwave and infrared radiation hazards, I suggest there are much more important and consequential activities for conscientious scientifically oriented groups to engage in.

Sheldon C. Plotkin
Los Angeles, CA

Author's Response:

Mr. Plotkin's expressed confusion gives the opportunity to again emphasize several main points of the article. First, his comments refer to visible and infrared radiation; the article I wrote

focused on microwave and radiowave radiation. As stated on page 34 of the article, "Out-door and indoor electric power lines as well as infrared and visible light are also in the domain of nonionizing radiation. (They pose their own health hazards but will not be discussed in this article.)" The confusion is the same one shared with ionizing radiation. The term "ionizing radiation" is commonly used to refer to X-rays and gamma-rays, for example, but in its most public sense, not to refer to ultraviolet — which is technically ionizing as well. So too, "nonionizing radiation" has come more and more to refer to microwaves and radiowaves, but not necessarily to infrared or visible, while technically that would be correct.

The confusion is understandable. While it is true that the sun bathes us in visible and infrared radiation near 100 mW/cm², at lower frequencies in accordance with the spectral distribution due to a hot body such as the sun, the intensity falls off extremely rapidly until — as listed in Table 4 of the article — the radiation due to the sun is less than 10⁻⁷ mW/cm² for microwaves and even less for radiowaves. Thus artificial sources of microwaves and radiowaves (creating levels from about 100 to 0.01 mW/cm² — see Table 4) are entirely unnatural — differing by a factor of a million to a billion — as emphasized many times in the article.

As far as biological hazards are concerned, there is a very significant difference between infrared and visible radiation on the one hand and microwaves and radiowaves on the other. The former do not penetrate the skin, the latter penetrate deep within or pass right through the body. The dangers of microwave and radiowave radiation at very low levels (say, below 1 mW/cm²) are controversial, in large part precisely because the effects or hazards depend on the nonthermal ways it may interact with biological systems. But certainly, microwave and radiowave radiation above 10 mW/cm² is regarded as hazardous by essentially all researchers in the field (for one of the most conservative views please read the quotation and

see the reference cited at the bottom of page 35 of the article).

Why should responsible organizations, such as Science for the People, be interested in the issue? As discussed in the article: Hazards due to nonionizing radiation are relatively new (in the last fifty years or so), they are pervasive, and the setting for its occurrence is both economic and political. For example, in recent studies conducted by the National Institute of Occupational Safety and Health, the majority of workers using radio frequency industrial sealers (perhaps millions of workers nationally) were found to be overexposed according to even the least stringent standards in the world (i.e., those in the U.S.).

Science and technology are not inherently evil. But rather the design and implementation of technologies and the application of scientific theory are imbued with the controlling political and social forces. Nonionizing radiation is such an example — being pressed into the service of the present controlling forces, often to the exclusion of the broader interest of society. Workers and people generally should have the choice to work and live in a healthy environment, they should have the power to make and exercise that choice, and they should have accurate knowledge to enable them to do both. I welcome this opportunity to again raise these important political issues for discussion and I invite response.

Ross Flewelling
Berkeley, CA

Dear SftP:

As a layperson, I have tried to keep up with publications on health, radiation, drugs, etc., and recently, I was rewarded for my efforts.

Two months ago I was fired from a part-time job in a day-care program for the frail elderly because I refused to take a second series of chest X-rays for T.B. clearance. The first set did not "come out" and I asked for the alternative procedure, the generally accepted PPD skin

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about this issue

This is the first issue of *Science for the People* to be edited by the Boston Editorial Committee since January. The issues done by the West Coast (Occupational Health, March/April) and Midwest (Cancer, May/June) Editorial Committees have given us some breathing space, and it's been a real luxury to work without an immediate deadline hanging over our heads. We've had the chance to stop and evaluate the kind of work we do, the way we do it, and how the editorial process relates to the product, as well as changes we'd like to see. We want to share our ideas with you, and thought this would be a good time and place.

What exactly do we do? We decide as a collective what goes into our issues of the magazine. Since we aren't trained editors, we feel that by working collectively we make the best use of our varied skills and knowledge. We discuss each article, hash out what we do or don't like, and then decide as a group whether to publish it. Once an article is accepted, we edit it into publishable form. Editing includes the fairly obvious task of copy editing: correcting typos, punctuation and spelling; checking for agreement of tenses; eliminating sexist language and technical jargon; etc. But we also edit on a more fundamental level to make articles as clear and readable as possible. We may rearrange paragraphs to make them follow more logically, or rewrite sentences to make them more understandable. Throughout, we try to stick fairly closely to the original — we use paste and scissors as much as we use red pencils. After we agree on the edited version, we get back to the author(s) with our changes. Sometimes authors approve our revisions outright; sometimes they use them as the basis for a rewrite; and sometimes we must haggle back and forth until we understand each other and can reach a compromise.

This process works to some extent. We catch problems fairly well on a sentence-by-sentence, paragraph-by-paragraph basis. But our process does not touch on an important aspect of an article: the way it approaches the subject. After looking over some of our past issues, we believe that many of our articles are, well, anemic.

First, many articles in *SftP* tend to be dry and distant. The authors stand away from their subjects, and the language sometimes veers dangerously close to the objectivized tone of scientific journals. Many articles sound too much like course papers (which, indeed, is

what some of them are). Often missing is a sense of *why* the subject is important, *why* the author is interested in it, and *why* *SftP* readers should be interested. Second, many articles are too general. *SftP* needs more concrete examples and facts. It's just not possible to cover everything about a large field in 4-6 pages; a better alternative is to focus on one or two well-defined points, place them in a larger context, and then develop an analysis. If the topic is too broad, it's easy to slip into oversimplifications like, "If we didn't have capitalism, we wouldn't have to worry about nuclear power." A statement like that can make an otherwise strong article laughable.

Lastly, we think that the magazine often fails to be timely enough. Sometimes we rehash the same subjects over and over again without offering a new perspective or fresh information. Certainly there are many politically relevant scientific topics out there, and surely our readers know about them.

Therein lies the key to what we'd like to see happen. We'd like you, our readers and writers, to put yourselves into the magazine more often. Write about what you know and do. Write about your political or scientific group's activities, your research, or events happening in your area. Start with a clear sense of what you want to say and why you want to say it. (In fact, please include a one or two sentence summary of your main point when you send us the article.) And then, don't write yourself out of it! Your enthusiasm can make an article exciting.

So much for our comments — now we'd like to hear yours. We invite disagreements, other ideas, and whatever feedback you have to offer. In addition we'd like to hear from people who want to contribute to the magazine in ways other than as article writers. Send us short items, letters, graphics and photographs; suggest people who can write on a specific topic for us. Among the topics we'd like to see covered in the next year are racism and science (e.g., sterilization abuse, biases in science education, sickle cell research, race issues in genetic engineering); work and technology (e.g., automation, jobs); the military as a scientific employer; and the politics of midwifery.

Many people throughout the country work hard in bringing out each issue of *Science for the People*. We thank them for all the work they've put in, and hope you all share with us the desire to build on our past efforts in order to produce an even better magazine in the future.

Sexual Harassment

YOUR BODY OR YOUR JOB

by John Beckwith and Barbara Beckwith

At workshop sessions at the conference (of women miners), the participants' unanimous complaint was that they were victims of sexual harassment. Many said they were repeatedly subjected to physical assault and verbal provocation . . . Some told about "company men" from foremen to mine superintendents, who made propositions after refusing to act on their complaints of sexual harassment, including repeated incidents of male exposure in the isolated mine tunnels.(1)

"If you don't cooperate sexually, you don't get the mounts — it's that simple." (Donna Hillman, ex-jockey).(2)

"I hadn't been teaching that long when the dean of my college was all over me for sex. He was terribly insistent and I repeatedly refused. The next thing I know he suspended me from teaching . . ." "Yes, I won (reinstatement), but it was after an interminable battle and that bastard jeopardized my whole career."(3)

Rape. Wife-beating. Incest. Pornography. Over the last five years these issues of violence against women have been raised by the political activities of women's groups. However, until recently there has been little interest in an even more pervasive form of violence against women, a form which, in addition, has severe economic consequences: sexual harassment of women on the job.

The scope of sexual harassment is staggering. It ranges from propositions and sexual innuendo to rape. It is just as pervasive in universities as in blue collar

jobs, in police forces as in acting schools, in the Equal Employment Opportunity Commission as in unions. The Women's Legal Defense Fund estimates that "more than 70% of working women experience sexual harassment on the job."(4) Other surveys have come up with similar figures.(5,6)

The Economic Consequences of Sexual Harassment

Sexual harassment contributes to women's inferior status in the job market. Frequently women are forced to choose between sexual harassment and lack of advancement, low pay, or job loss. Many women will quit their jobs rather than submit to the advances of their superiors. In January 1973 employed women averaged 2.8 years of continuous service with the same employer, while men averaged 4.6 years. Lin Farley, in *Sexual Shakedown*, attributes a significant fraction of this turnover to sexual harassment. Job turnover results in loss of seniority, on-the-job training opportunities, promotions and raises, involvement in unions, insurance eligibility, and strong recommendations. Women who stay on at their jobs without responding to male advances can be confronted with a powerful array of penalties: demotions; reassignments of shifts, hours, or location of work; refusal of overtime; impossible performance standards; and negative job evaluations.

In addition, the strain of both the original harassment and the penalties for non-compliance can have severe physical and mental effects on women. These range from minor pain and tics to major illness, physical damage in the case of rape, or nervous breakdowns.(7) Even without physical damage, many women experience a loss of self-respect which makes them more vulnerable to male domination in future jobs.

"I never spoke to the police, that I was ashamed to do, thinking it must be my own fault in some way."(8)

Barbara and Jon Beckwith are longtime members of the Boston chapter of SftP. Barbara teaches at an alternative public high school. Jon teaches and researches microbiology, and is currently active in the Boston sociobiology group.

"I felt humiliated, incompetent. I was unable to do my job."(9)

As in most other aspects of the employment scene, blacks have suffered more than whites.

Of all women, they (black women) are the most vulnerable to sexual harassment, both because of the image of black women as the most sexually accessible and because they are most economically at risk.(10)

However, black women have taken a leadership position on this issue, having brought a disproportionately large number of the law suits. Because sexual exploitation has been integral to racist oppression in this country, black women are less likely than white women to view sexual harassment as a personal problem.

Our male-dominated society encourages (often to the point of requiring) women to present themselves as sexual objects in order to get certain jobs, and rationalizes male sexual aggression against them as expressions of men's "naturally" more active sex drive. The courts in some cases still accept this explanation as a defense against sexual harassment charges. In one case, two women were pressured for sexual favors in exchange for employment advancement; the judge found no sex discrimination, stating that the employer's conduct was "no more than a personal proclivity . . . By his alleged sexual advances, Mr. Price was satisfying a personal urge . . . Such highly personalized and subjective conduct is not the concern of the courts."(11) Such judicial rationalizations are not uncommon, even though the

work of Masters and Johnson makes it clear that sexual drives are about equally strong in men and women. The explanation for sexual aggression against women on the job clearly lies somewhere other than in "natural male drives."

Mary Bularzik, in her book *Sexual Harassment at the Workplace: Historical Notes*, argues that the assertion of power and dominance is more important than sexuality in cases of sexual harassment. Her analysis is similar to the redefinition women have given to the act of rape as primarily an act of violence and domination which cannot be explained in terms of sexual urges. Although sexual acts are involved, they are no more than the means to achieving domination, not the goal itself, as men, including some judges, would prefer to believe.

The Origin of the Problem

A debate often arises in left political analysis when issues of sexism, sex inequality and violence against women are discussed. According to one point of view, these various forms of oppression have their origins in and are maintained by the capitalist system.(5) Thus, elimination of capitalism with all its manifestations and the establishment of a socialist society would result in sexual equality and the absence of sexual oppression. An alternative perspective is that the source of these problems lies in patriarchy, a system of men's domination of women which predates capitalism. This pervasive form of domination exists in all economic systems and in a society such as ours is reinforced by the needs of the capitalist economic system. If one accepts this analysis, then the struggle against capitalism and the struggle against patriarchy must be carried on side by side. We support this latter view as do Lin Farley and Mary Bularzik. Farley sees sexual harassment on the job as part of the way males maintained their control after the emergence of capitalism threatened the base of control formerly found in the family.(12) Bularzik believes that women were sexually harassed even in older societies "to keep them from stepping out of line in other ways."(13)

Dealing With The Problem

Until 1975 the term sexual harassment essentially did not exist. While the Supreme Court has not yet ruled on any sexual harassment cases, in 1976 a United States District Court Judge ruled that sexual harassment was a violation of the Title VII sex discrimination clause of the Civil Rights Act of 1964. Wisconsin, in 1978, became the first state in the union to pass a statute explicitly prohibiting sexual harassment in employment. In 1979, clerical workers at Boston University, represented by District 65, UAW, won a contract with one of the first



Ellen Shub

sexual harassment clauses in the nation.(14) And this year the Equal Employment Opportunity Commission published regulations forbidding sexual harassment on the job.(15) Under these regulations employers must pay compensating damages to employees who have been sexually harassed and are liable to court action if they refuse. This progress could not have come about without the actions of women's groups and the publicity these actions have received.(16)

However, despite these successes, it is clear that women cannot rely on the courts and the unions as the major source of redress or the solution to the problem. Since the courts are only slowly accepting the idea that sexual harassment is an offense, the likelihood that a court will rule against a case is high. Moreover, legal redress is expensive and time-consuming. With regard to unions, Lin Farley points out:

Unions frequently discriminate against their female members' needs for equal hiring practices, seniority, equal pay, daycare, maternity leave, social insurance . . . The mainstream of the American labor movement was fueled at birth by a desire to maintain the male domination of female labor.(17)

Catherine MacKinnon, in *Sexual Harassment of Working Women*, also documents union refusal to process grievances based upon claims of sexual harassment, but acknowledges that some unions have supported women. In one case, an auto union actively worked to change the pervasive attitude in a plant that "any woman who works in an auto plant is out for a quick make."(18)

Only as women speak out and organize — through support groups in workplaces, assertiveness training, consciousness raising groups, union caucusses, and grass roots women's worker groups (like 9 to 5 in Boston and Women Office Workers in New York) — will attitudes change and government and unions be forced into action.

Sexual harassment will be stopped when women finally take control of their own labor power via collective bargaining and striking to regain their rights. It will be a long fight but it is the inevitable future. Women's stamina, energy and courage in the battles on rape and abortion have made recent history; because of sexual harassment, they will change the face of modern work as well. It is only a question of time.(19)

It is also time that groups, like Science for the People, which have had a longstanding involvement in issues of occupational health and safety and in issues of sexism



THE WORKBOOK /cpf

and sexual oppression deal with the problem of sexual harassment.

Resources

The recent books and pamphlets which we have used as sources in this article are directed at different audiences. Lin Farley's *Sexual Shakedown* is the most general book, and gives a readable overview of the problems, with many examples and transcripts of particular cases. We recommend this book strongly since its details and examples cannot help but shock the reader into a recognition of the enormity of the problem. *Sexual Harassment at the Workplace: Historical Notes* by Mary Bularzik reviews sexual harassment of women on the job since industrialization and even before. *Sexual Harassment of Working Women* by Catherine MacKinnon is a more technical book which reviews in detail all the major court cases, the approaches that have been used in such cases and the contradictory rulings by different judges. *Fighting Sexual Harassment, An Advocacy Handbook*, is published by the Boston-based Alliance Against Sexual Coercion(20), one of the few groups to begin working on this issue. It is a practical handbook for social service workers, written in a down-to-earth style, which outlines both legal and extra-legal tactics for helping clients to fight sexual harassment. Another group which does research on the issue, the Working Women's Institute, has recently created a National Sexual Harassment Legal Back-up Center (593 Park Ave., New York, N.Y.).□

REFERENCES

1. B.A. Franklin, "Female Miners in UMW Meeting Denounce Sexism and Lack of Safety," *New York Times*, Nov. 11, 1979.

(continued on page 35)

Science for Sale

THE PESTICIDE CONNECTION

by Paul Barnett

Rancher George Neary, who raises cattle in California's Central Valley, is unhappy with what he calls "chemical huckstering" by the land-grant college in his area, the University of California (U.C.). "The University farm advisors came through here with a traveling road show telling all the ranchers that they ought to dip their cows in Toxaphene," he says, adding that the treatment is both unnecessary and dangerous. Last winter, state officials ordered Neary's herd dipped, and he lost 500 aborted calves and 100 poisoned cows. He has filed an \$11 million lawsuit that names not only the state officials who dipped his cattle, but also the University of California veterinarians who investigated the incident and placed the blame for the cattle deaths on Neary and his hired help.

Federally funded Farm Advisors work in every farm area in the United States. They are backed by the \$750 million a year research effort conducted by professors at land-grant colleges. Land-grant college extension and research is regarded by most farmers as a neutral, unbiased source of information.

Farmers like George Neary feel that the objectivity of these scientists is being compromised by the close financial ties to chemical manufacturers. The allegation is backed by some scientists within the land-grant establishment. "Chemical companies are brazenly buying University goodwill," said the late Robert van den Bosch, a world renowned entomologist at the University of California at Berkeley. "This to me is corruption."

Gifts from chemical companies help support the university scientists' work. Companies that manufacture pesticides gave 420 gifts worth some \$689,000 to the University of California Division of Agriculture in fiscal year 1978-79.(1) These gifts went to support the work of both farm advisors and research personnel.

Other victims of pesticide misuse have also charged

Paul Barnett did the research for this article while a research associate at the California Institute for Rural Studies. He is currently coordinator of the California Agrarian Action Project, a rural political organization, and is developing educational materials on alternatives in pest control and the problems connected with pesticide misuse.

that scientists at the University of California have minimized and even suppressed information about the hazards of pesticides. The Oil, Chemical and Atomic Workers Union has filed suit on behalf of 20 workers sterilized by DBCP against Dr. Charles Hine of the University of California at San Francisco. DBCP is a soil fumigant used to kill nematodes, microscopic worms which feed on crop roots. The action claims the workers were harmed because Hine suppressed evidence that the chemical damaged the testicles of experimental rats.(2) Named as co-defendant in the suit is the Shell Chemical Company, a DBCP manufacturer which gave Hine \$400,000 in research grants and employs him as a private consultant.

Northern California residents concerned about the health hazards associated with sprays of 2,4,5-T on timberlands found formidable opposition from U.C. scientists. "Commercial preparations of 2,4,5-T are about as poisonous as diesel oil, paint, or nail polish remover," testified plant physiologist Boysie Day before the California Senate.(3)

"Day was very impressive with his University credentials and all," says Ruth Ann Cecil, a leader in the community movement which sought to stop the spraying. "But he only talks about the immediate effect of ingesting some herbicide — the acute toxicity," she says, "He ignores the whole question of the long term effects."

"In terms of safety and public health effects, the University of California does relatively little research," says Dr. Ephraim Kahn, who recently retired from his position in the State Department of Health Services, where he was in charge of pesticide safety. "The question of chronic, delayed, or longterm effects, such as cancer, are just not known." Kahn says that although certain mixtures of pesticides are far more toxic than would be predicted by adding their toxicities, no one has really looked into this effect, called potentiation.

Kahn says that the University of California does far more research work on evaluating pesticide effectiveness. Chemical company grants, he feels, have oriented the University in this direction.

James Kendrick, head of the U.C. Division of Agriculture, disputes the allegation that the gifts might inter-



fere with scientific objectivity. "The accusation is that money leads the faculty around by the nose — which I strongly resist, because the faculty isn't that easily lead around by the nose," says Kendrick.(4)

Chemical companies usually specify which University scientist is to receive their gift. The Auditor General of the California State Legislature studied the gift system and reported that "the University regularly performs research on proprietary (brand name) agricultural chemicals and pharmaceutical products as a result of donations from manufacturers of the products involved." Gift documents sometimes specify the methodology and delivery dates of research, the auditors found.(5)

Support from the private sector does influence research programs at the University of California, according to Charles Hess, Dean of the College of Agriculture at the Davis campus. "But all of this is a healthy relationship rather than an unholy alliance," the Dean maintains.(6) The support from the private sector is seen as "a valuable means of exchanging information, and keeping academic research relevant to real life needs."

There is some indication, however, that research grants influence University priorities. The chairmen of the 25 departments in the College of Agriculture on the Davis campus answered a survey on the factors which can influence choice of research topics. Their most popular response was "money can influence (or dictate) what research gets done."(7)

Most of the costs of University of California research, including the cost of the scientists' salaries, laboratories and offices, are paid by the taxpayer. For each dollar of mini-grant support that they give, pesticide manufacturers can obtain \$5-10 worth of research on their products. The mini-grants are treated as tax-deductible donations to a charitable institution, so, in effect, the tax-payer subsidizes the mini-grant as well.

"The mini-grants are a cheap buy for the chemical companies," says U.C. entomologist Andy Gutierrez. "If the University didn't do the studies, then they would have to do the research themselves, and of course their results would be more suspect than those of the University. They get a lot for their \$2,000 grant — the researcher's time, University facilities, equipment, vehicles, and a whole lot of other things wrapped up into a little package that says the University tested this, therefore it's o.k. But it costs more than \$2,000 to do the tests, and the University subsidizes the rest of the work."

Where the University scientists' participation in regulatory decisions is a matter of public record, it can be seen that they frequently lobby on behalf of products of their mini-grant benefactors. U.C. Davis entomologist Harry Lange, for example, supported an emergency exemption from registration requirements for Mesurool, a product of Chemagro, a pesticide company that has given Lange 18 gifts worth \$17,975. Farm advisor Norm McCalley received \$12,800 in 13 grants from companies that sell Benlate and Captan, products which he asked to be granted a special local needs registration.

The chemical companies also make direct gifts. Farm advisors Hodge Black and Marvin Schneider, for example, took a deep sea fishing vacation to Cabo San Lucas Mexico, at the expense of the Stauffer Chemical Company. FMC-Niagra reportedly chartered a fishing boat to take a group of U.C. scientists salmon fishing off the coast near San Francisco. Scientists freely admit receiving travel expenses, meals, and lodging from chemical companies. Farm advisor Norm McCalley received \$2,000 from pesticide manufacturer ICI Americas, Inc., to pay for his expenses while he was on leave from the University.

U.C. Berkeley entomologist Andy Gutierrez reports, "University scientists get travel expenses from chemical companies to go to national meetings. The various pesticide companies have hospitality suites

which are overflowing with University scientists, who are getting drunk on free liquor.”

It is a sort of pesticide payola, purveyed to generate good will. There are few rules which regulate it. Peers tolerate and even expect it. To some it looks like science for sale.

II.

Scientists at the University of California have had a crucial role in developing the state's pest control system. Professors research the effectiveness and the hazards of new chemicals. Farm advisors from the University Co-operative Extension Service recommend to growers which of the more than 10,000 available products they ought to use. University graduates become chemical salesmen, government officials, and farmers. Pest control is a billion-dollar-a-year, chemical intensive business in California. Pesticide use has soared above 300 million lbs. a year, and represents 20 percent of the total U.S. use.

A damning appraisal of the pesticide intensive status quo comes from the University of California's own Division of Biological Control. Scientists from the Division studied the state's 25 most serious pest insect species and found 17 had developed resistance to insecticides. Because chemicals also kill beneficial insects, eliminating natural control mechanisms, pesticide use often causes new pest outbreaks. The U.C. scientists found that 24 of the 25 have become more serious pests because of this pesticide side-effect. "The evidence clearly suggests that intensive insecticide use has not reduced or ameliorated insect problems," they conclude, "rather it has intensified them." (8)

The Biological Control scientists advocate a multifaceted pest control approach, called Integrated Pest Management (IPM). IPM uses resistant crops, predatory insects, and other non-chemical controls, along with a trained consultant who monitors the insect populations so that pesticides are applied only when they are absolutely necessary. Despite the expense of hiring this

consultant, cotton growers who use IPM have reduced their pesticide use by as much as two-thirds, cutting average pest control costs by \$7.19 an acre and maintaining good yields. (9)

An Integrated Pest Management program has also been developed for California pear orchards. (10) "The pear growers who have switched to Integrated Pest Management have cut their pesticide use by 30 percent," says Pat Weddel, an advisor who has worked with the pear program from the beginning. The program has saved growers money, while protecting the crop.

Despite these promising beginnings, few farmers use IPM and California remains the world's most intensive user of pesticides. Though pesticide use has doubled in the last eight years, the cost of insect caused crop damage is increasing rapidly. California farmers are caught on a treadmill of increasing pesticide use. As they spray more, they create new pest problems, and once again increase their chemical use. If the successes of IPM in the cotton and pear industries are representative, then farmers are being overcharged by as much as \$500 million a year for unnecessary chemicals. The increased chemical load is also creating new public health and environmental problems.

But even in the crops where the IPM system has been developed, relatively few growers have yet improved their pest control practices. "There's no guarantee that anything we develop is going to be implemented," says biological control scientist Dick Garcia. The crucial link between researcher and farmer is the farm advisor — the University of California Co-operative Extension Service.

Pest control recommendations made by the University are heavily weighted towards chemicals. An evaluation by the Co-operative Extension Service of its 4,300 published pest control recommendations found that 93 percent were for chemical control. Only 7 percent described biological, microbial, or cultural control methods. (11)

One problem is that information on non-chemical pest control discoveries does not necessarily reach the farm advisor. Though U.C. has 20 pest control specialists to act as a link between researcher and farm advisors, there is no pest control specialist for the Division of Biological Control. Leon Tichinin, former director of the farm advisor's office in Santa Clara County, says "Chemical company representatives were a good source of information. University researchers were slow to get information to the Extension Agents, while the people from the chemical companies were always there with the most current information."

Another explanation for the extension agents' predilection for pesticides is the hundreds of mini-grants that they receive each year from pesticide manufacturers. The University of California Extension Service

(continued on page 29)



COSH Around the Country

ORGANIZING FOR JOB SAFETY

by Dan Berman

What Is a COSH Group?

A COSH group is a "committee on occupational safety and health." It's a regional coalition of workers, trade unions, and health and legal specialists. The first one was started in Chicago in January 1972 and is still thriving. At one time or another there have been over two dozen COSH groups: San Diego, Los Angeles, the San Francisco Bay Area, Pittsburgh, Ashland (Kentucky), New Haven (Connecticut), St. Louis, Houston and other places. Currently the most active groups are in Chicago, New York, Milwaukee, Philadelphia, Massachusetts and Rhode Island. The Brown Lung Associations in North Carolina, South Carolina and Georgia are similar to COSH groups in many ways, though they have concentrated on getting workers' compensation benefits for (mostly) non-union workers who suffer from byssinosis or "brown lung" disease, which workers acquire by breathing cotton dust.

How Are COSH Groups Formed?

CACOSH, the Chicago Area Committee for Occupational Safety and Health, was initiated by a few people working with the Chicago Chapter of the Medical Committee for Human Rights (MCHR). The national chairperson of MCHR was Dr. Quentin Young, the personal physician to many of the reform-minded labor leaders in Chicago. He introduced a

This article is an updated version of an article which first appeared in C/O-Journal of Alternative Human Services, Winter 1979-80. Dan Berman works as Occupational Health Coordinator for the Oil, Chemical and Atomic Workers International Union. As director of the Occupational Health Project of the Medical Committee for Human Rights, he helped organize grassroots committees for occupational safety and health in a number of U.S. cities. He has written several pamphlets ("A Job Health and Safety Program on a Limited Budget" and "A Guide to Worker-Oriented Sources in Occupational Safety and Health") as well as a recent book, Death on the Job, available from Monthly Review Press, 62 W. 14th St., NY, NY 10011 (reviewed in SitP, May/June 1980).

young doctor, Don Whorton, to some of these leaders, and Don and others went on to organize a conference on occupational safety and health co-sponsored by a number of union locals, the University of Illinois School of Medicine, some regional union leaders, and the Chicago chapter of MCHR. The conference was held on a Friday night and Saturday, so that working people could attend. About 180 people showed up at the conference, where a "continuation committee" was chosen which ultimately became CACOSH.



How to Look at Your Workplace/UPA

In Philadelphia there had been attempts to form a group to act on occupational safety and health since the early 1970s, when the Occupational Safety and Health Act (OSHA) came into effect. The efforts centered around the local MCHR chapter, but none were successful until Rick Engler came to town. He had worked closely with Tony Mazzochi, a leader of the Oil, Chemical, and Atomic Workers (OCAW), on building public support for the 1974 Shell strike, in which one of the principal issues was occupational health. Engler was

also writing a pamphlet on the hazards of petroleum refining when he moved to Philadelphia with the intention of getting an industrial job. But after 40 or 50 job rejections he decided to work full-time on health and safety organizing for as long as his money held out. His apartment soon became the center of such activity in the city.

During the spring and summer of 1975, Engler and some of the earlier MCHR group held educational meetings primarily for health-technical people, in order to identify a support cadre for the proposed group. In the autumn of 1975 the new group, now called PhilaPOSH, the Philadelphia Area Project on Occupational Safety and Health, held a nine-session health and safety course designed primarily for industrial workers. Thirty workers from over 20 local unions attended these sessions. Attendance was high partly because PhilaPOSH was able to borrow the mailing list of a local labor-university extension school, and the group took off from there.

MassCOSH, the Massachusetts Coalition for Occupational Safety and Health, was the outgrowth of the Job Safety and Health Project of Urban Planning Aid (UPA), a federally-funded think tank and organizing group left over from President Johnson's "War on Poverty." UPA had managed to slip health and safety into its program, and in 1969 a couple of people from UPA helped form a safety committee at a General Electric plant near Boston organized by the International Electrical Workers Local 201, the biggest union shop in Massachusetts. UPA helped set up an accident reporting system and gave educational sessions on particular hazards, and soon spread its program to other unions. They were the chief force behind the rejection of Massachusetts' takeover of federal OSHA enforcement. (Although the OSHA law provides for optional state takeover of enforcement, almost without exception state enforcement is weaker than federal enforcement, and so the labor movement has fought state takeover.) UPA also started an excellent newsletter, *Survival Kit*, and wrote a number of illustrated pamphlets on health and safety. By the middle '70s it became clear that the federal government might cut off funds for UPA, so the safety and health group decided to try to create an independent state-wide coalition on safety and health. Almost 300 people participated in the founding convention of MassCOSH in the spring of 1976, and the group has had an active if precarious existence ever since.

Why Are COSH Groups Necessary?

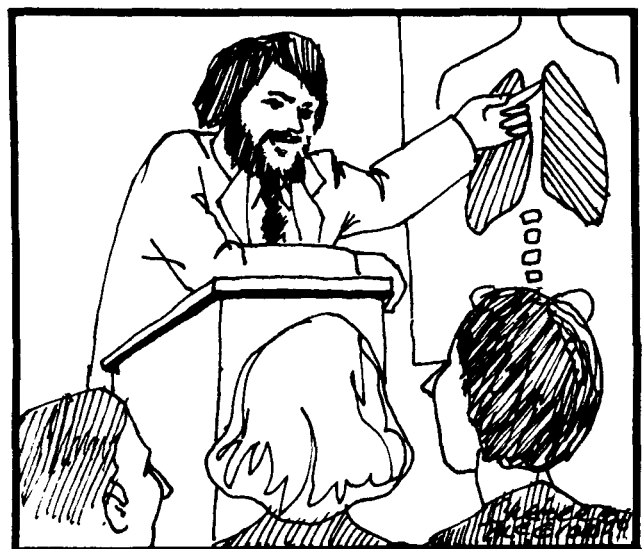
If anything is to improve occupational health and safety it will happen at the point of production. Regional committees on safety and health are necessary because they support struggles on the shop floor. Some unions have been reluctant to train rank-and-file workers in health and safety, and the COSH groups fill the

gap. Even unions which teach annual or semi-annual training sessions find it difficult to arrange local technical and political support on a daily or weekly basis, or to accurately monitor OSHA enforcement by the local government bureaucracies. The COSH groups have been able to provide volunteer technical support from physicians, industrial hygienists, engineers, noise experts, and lawyers to the daily health and safety struggles on the shop floor. COSH groups have also been very successful in building mass media interest and public support for stricter enforcement of the OSHA law. For instance, the Cement, Line, and Gypsum Workers, with only 60,000 members nationally, has only one part-time health and safety specialist. He can't possibly cover all the cases where help may be needed, and routinely advises members to contact a COSH group whenever possible.

Industry has the National Safety Council and professional societies for its health and safety technicians which are organized by chapters in the major industrial centers. It seems only logical that workers and unions should have their own local health and safety institutions. The enthusiastic response by local unionists to COSH groups shows that there is a real demand for local support. Though national unions were initially ambivalent about the COSH groups, there is an increasing awareness of their usefulness, and an increasing respect for their capacity to help in health and safety struggles. The COSH groups are part of a national effort to create a grass-roots movement around the issue of job health and safety.

What Do COSH Groups Actually Do?

One of the most important COSH activities is to hold courses and sponsor conventions, either for a group of workers in a particular industry, or for indi-



McGraw/C/O

vidual union locals. For example, in late 1972 CACOSH held a five-session course on health and safety for District 7 of the Oil, Chemical and Atomic Workers (OCAW). Typically, such courses will begin with a discussion of the different routes by which toxins can enter the body. Often there will be an explanation of lung function and the causes of the most deadly occupational respiratory diseases such as black lung and asbestosis. Frequently, there will be a discussion of stress and its relationship to speed-up, authoritarian management styles, and workers' lack of control over worker conditions. Instead of shaming "careless" or "stupid" workers for accidents or occupational diseases, COSH groups generally focus on management's responsibility for creating the conditions which cause mishaps. At such courses, workers and lawyers discuss their experiences with the OSHA law and how it can be used to their best advantage. Recently (March 1980), the Women's Committee of MassCOSH sponsored a conference entitled "Women's Work, Women's Health," at which over 300 workers and health/technical personnel shared their experiences and information.

The COSH groups also lobby for a variety of goals. In the state of Illinois CACOSH led a campaign to get workers' compensation payments for partial hearing loss, and also helped defeat the Illinois state plan to preempt federal enforcement of the OSHA law. PhilaPOSH has started a nation-wide "right-to-know" campaign which has been supported by all the COSH groups and many of the local and regional and national unions. The "right-to-know" forces are pressuring the OSHA administration to pass a regulation which guarantees to workers the right to know the chemical names and hazards associated with all substances used in the workplace. This is the first issue in which there has been national cooperation between the different COSH groups. Dr. Eula Bingham, the head of OSHA, has promised to pass such a regulation as quickly as possible. The COSH groups have naturally been in the forefront of the battle against Senator Schweiker's "Occupational Safety and Health Improvement Act of 1979", a misnamed bill (reflecting today's 1984-style Newspeak) which would, if passed, make it impossible for workers to call in government inspectors. They have sponsored rallies, pickets, and newspaper ads and the chances of defeating the Schweiker bill seem good.

Within the workplace, the COSH groups have helped form local union safety committees and given them orientation and advice on specific problems, often when no one else was willing or able to help. Typically, one member of the health-technical committee becomes the liaison to a particular union local, after appropriate orientation by more experienced COSH participants. The COSH groups see the workplace safety committees as the basic unit of struggle over working conditions.

Who Belongs to COSH Groups?

COSH groups have followed one of two membership strategies. Most groups provide for both individual and union memberships. For example, individuals can belong to PhilaPOSH for \$6 a year, while unions can become sponsors of the organization by contributing 10 cents per member per year, with a minimum of \$50 and a maximum of \$200 per local. Sponsors get special rates for services and training programs. CACOSH has a comparable dues structure. Sponsorship by local unions makes the COSH group a part of the union scene, and forces COSH activists to justify requests for funds before local union executive boards. In contrast, BACOSH (in the San Francisco Bay area) never made a provision for sponsorship by union locals, and individual dues rose to \$12 a year.

How Do COSH Groups Relate to Unions?

Successful COSH groups have made it a point to work closely with unions, since unions are the only organized groups capable of dealing with health and safety issues. A principle reason for the failure of COSH groups has been their inability to establish working relationships with unions. The fault, however, has been mutual.

On the one hand, some of the middle class health-technical people who have been active in starting COSH groups learned their politics in the 60s and 70s. They have had little interest in or understanding of how unions work. Some COSH groups have tried to by-pass official union structures and work directly with so-called rank-and-file groups; they believed that unions are so corrupt and closely tied to the bosses that dealing with them is a waste of time. But none of these "anti-structure" COSH groups has survived.

Consciously by-passing elected union officials is tantamount to dual unionism. In 1975, COSH organizing in St. Louis failed because the group was split between those who refused to work with union leadership and others who believed that working with unions was the only possible way to go. Distrust of the unions by the original BACOSH, symbolized by their unwillingness to provide for local union membership, was a major factor in that group's demise. Out of the 300 or so local unions in a city like San Francisco, only 5 or 10 have viable rank-and-file movements at any one time; such movements are so pressed for mere survival that they have little time for health and safety, unless that issue created the movement in the first place.

The quickest way to destroy a COSH group is for it to denounce all union leadership in the name of a self-appointed "rank-and-file." This gives the union leadership, usually reluctant to act on health and safety, the perfect excuse to denounce the COSH group. As a prac-

tical matter, COSH groups usually give aid to any workers asking for help on health and safety, but COSH groups should concentrate on health and safety issues and not meddle in internal union affairs.

On the other hand, business unionism is notoriously impervious to new ideas which might agitate the rank-and-file. It has been difficult to form COSH groups in many cities because they lack industrial unions with a recent tradition of rank-and-file democracy. In Pittsburgh, headquarters of the United Steelworkers of America, the international union in 1972-73 saw PACOSH (Pittsburgh Area Committee for Occupational Safety and Health) as a potentially disruptive force which they might be unable to control; they discouraged Steelworker locals from giving PACOSH organizers the support they sought. As a result many PACOSH organizers became discouraged and quit the organization to work on reforming their own unions. Perhaps it has been easier to form COSH groups in Chicago and Philadelphia because they are large cities with strong union movements and a high concentration of dangerous industrial plants.

Many COSH Groups have established good working relationships with unions. The boards of directors of the COSH groups in Chicago, Massachusetts, and Philadelphia are dominated by local union leaders or members. As COSH groups have matured and as more unions have become concerned about health and safety issues, relationships between many COSH groups and unions have been strengthened. The national Steelworkers health and safety staff has begun to emphasize the importance of rank-and-file education in health and safety, a primary COSH strategy. During the last year or so the international has worked cooperatively with CACOSH in Chicago. In St. Louis a new COSH organizing effort is beginning with union collaboration and a new BACOSH is forming in the San Francisco Bay area.

What Is The Basic Constituency For These COSH Groups?

If new ways of thinking and acting are to spread, people have to meet others with the same interests and problems. National union staffs can rarely provide this sense of solidarity in struggle. For some unionists, COSH groups are the only place they can meet and work together with rank-and-file leaders from other unions, or deal with professionals and intellectuals on a cooperative basis. COSH groups can overcome the tremendous isolation of people who are interested in health and safety on the workplace floor. In addition, for rank-and-file workers, health and safety is one of the few areas where they can legitimately struggle for new power over the company and develop leadership experience.

Theoretically local unions and local safety commit-

tee members are the backbones of COSH groups. But it turns out that most of the organizational shitwork is done by members of the health-technical committee. For the health-technical people, the COSH group is their primary organization; for the workers their own union comes first. If a mailing has to go out, the health-technical people — often students or professionals — see that it gets done.

Rank-and-file union activists are usually extremely busy. In addition to working at least 40 hours a week for the company, they have to spend time on union business and with their families. To commit extra hours every week to building a COSH group isn't easy. Unless there is a specific problem in health and safety or they are from a large local which can afford to maintain them full-time, activists from the unions can best help a COSH group by teaching the health-technical people about the realities of industrial work, by encouraging their local unions to pay COSH dues, or by serving on the COSH group's Board of Directors. For many health-technical people — nurses, MDs, industrial hygienists, lawyers — the major political activity has been with the COSH groups. Such people have been happy to find a way to put their professional skills to work in a progressive context which helps workers fight back. Without their donated skills, the COSH groups couldn't exist. They are as essential as union support. A COSH group which hires two staffers should make sure that one can mobilize the unions and the other the health-technical people.

How Have These COSH Groups Been Financed?

Money has always been a problem. CACOSH in Chicago has gotten most of its money the hard way and the best way, through local union membership dues and from sympathetic professionals. Though it has been impossible to support full-time staff on the money brought in from this fundraising, many people active in the organization oppose a search for foundation money, which would tend to make CACOSH too independent of its natural constituency in the unions. Through tacit understandings, students and staff of the University of Illinois School of Public Health have been able to devote substantial time to CACOSH.

PhilaPOSH has raised most of its money from local foundations and church groups. This income has made it possible to pay staff salaries commensurate with wages from unionized industrial work. A financial summary of the year 1976 shows that of a total PhilaPOSH income of \$19,000, 63 percent came from foundations or churches. In 1977, 82% of a total income of \$43,000 came from comparable sources. PhilaPOSH now employs three full-time staffers: Rick Engler; Jim Moran, a former UAW shop steward who was fired illegally from his job because of vigorous health and safety activity; and Mary Aull, a former organizer for a hospital work-



How to Look at Your Workplace/UPA

ers' union. Without the foundation grants it would have been impossible to pay Jim Moran a living salary, since he has a family which depends on his income. Jim's experience of over 20 years as an industrial worker, including many years as a shop steward, has been invaluable in the recent development of PhilaPOSH. He was responsible for the group's expansion across the river to New Jersey, and he effectively counterbalances the hasty anxiety of some of the younger members of the organization. There are advantages to having a large income, at least in the short run. With full-time staff it is much easier to create new programs and carry them out. One of the problems with getting grants from foundations and churches is that they require a great deal of paperwork and a tremendous amount of time "selling" the program to funding sources, which drains away time from the real work of the COSH groups.

Since 1978, several COSH groups have gotten substantial grants from the OSHA administration under Eula Bingham's much praised "New Directions" program. So far these grants, designed to run for 5 years, have enabled the recipient groups to greatly expand their activities without toning down their fighting spirit. But unless new funding sources are developed which are independent of government, much of the COSH movement's activities will self-destruct like the "War on Poverty" programs of the late '60s when the easy government money runs out. The COSH movement must constantly build its base among the unions and the rank-and-file.

How Have The COSH Groups Dealt With Unorganized Workers?

The Electronics Committee for Occupational Safe-

ty and Health (ECOSH) has raised the issue of health and safety among the tens of thousands of unorganized electronics workers, mostly minority and immigrant women, in the Santa Clara Valley down the peninsula from San Francisco. They have fielded hundreds of information requests, published hazard sheets, done seminars, and received some good press coverage. The long-term plan is to create a consciousness about work hazards and the need for a unionized workforce.

Since ECOSH is not a union, government health and safety agencies have refused to consider it the official bargaining agent and thus won't allow it to file complaints on behalf of electronics workers. Some unionists argue that to support health and safety struggles among non-unionized workers fosters dangerous illusions in the working class about government. A successful inspection (which results in the removal of hazards) conveys to unorganized workers the message that the government will solve their problems and that a union is superfluous. An unsuccessful inspection — the most common kind — often leads to the firing of activists and creates a sense of helplessness about the possibilities of change. Unfortunately, health and safety is only one of many issues, and usually not the only one, which can trigger a successful organizing drive. Clearly the issues of health and safety cannot be separated from the other issues which affect the working class.

What Is The Future Of The COSH Groups?

I think they will be around and fighting for a long time.

The addresses of most of the COSH groups were listed in the resources section of the March/April issue of *SfiP*. Some additional groups are listed below.

Brown Lung Association-Greenville Chapter
P.O. Box 334
Greenville, South Carolina 29604
(803) 235-2886

Maryland Committee on Occupational Safety and Health (MaryCOSH)
P.O. Box 3825
Baltimore, Maryland 21217
(George Vlasits at (301) 467-2606 (evenings) edits the newsletter)

Santa Clara County Committee on Occupational Safety and Health (SantaCOSH) (which includes the Electronics Committee for Occupational Safety and Health-ECOSH)
655 Castro St.
Mountain View, CA 94041
(415) 969-7233

Tennessee Committee for Occupational Safety and Health (TENNCOSH)
c/o Center for Health Services
Station B
Vanderbilt Medical School
Nashville, Tenn. 37235
(615) 322-4773

Prospects and Problems

THE ANTI-NUCLEAR MOVEMENT

by Joe Shapiro

This article will attempt an analysis of the anti-nuclear movement, emphasizing how that movement is related to the long-term goal of building a revolutionary movement in the United States.(1)* Thus a brief statement of the current objective conditions in the U.S. and a discussion of the prospects for success in eliminating dependence on nuclear power as an energy source are needed. It is then argued that the main potential of the anti-nuclear movement is as a mechanism for raising the political consciousness of those actively participating in its struggles. Some historic trends and current problems in the movement are then analyzed. Finally, it is argued that two recent factors — formation of the Citizens Party and increased trade union participation — could change the character of the movement in dramatic ways.

The analysis is highly provisional, and doubtless oversimplified. My main hope is to initiate discussion on the nature, objectives, and potential of the movement. My experience with anti-nuclear organizing is limited, though for many years I have spoken out against

*Many of the ideas presented here arose out of discussions with friends. I'm particularly indebted to Arnold Cohen, Rod Goldman, Jules Lobel, Carlin Meyer, Janet Plotkin, Mimi Rosenberg, and Weimin Tchen.

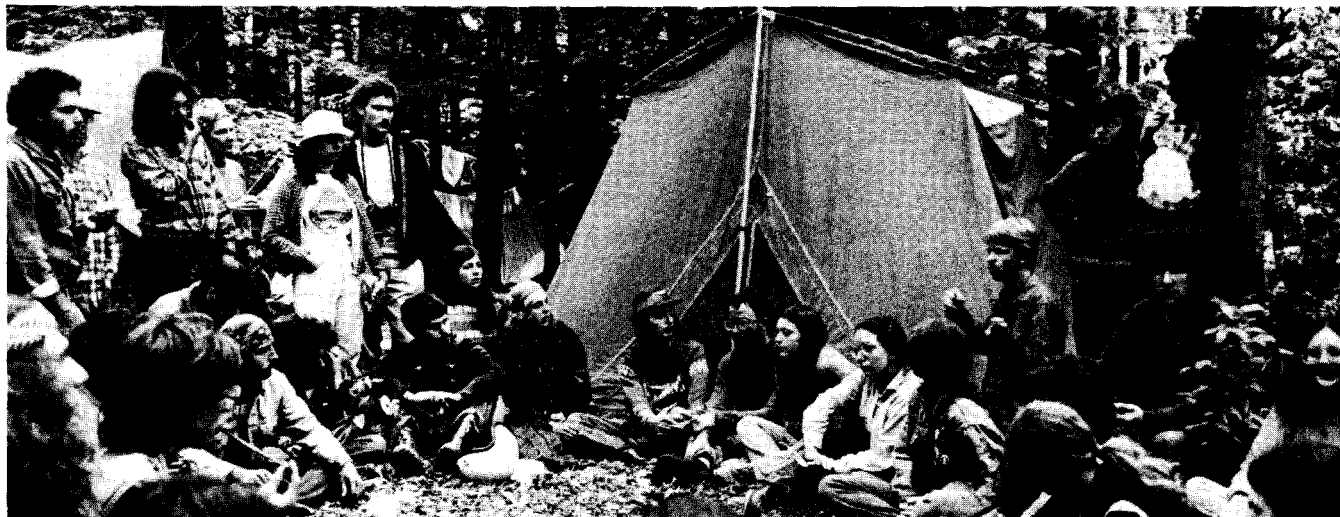
nuclear power. Since last fall, I have been involved in New York City, as a member of the North Manhattan local of the SHAD (Sound-Hudson Against Atomic Development) Alliance.

Objective Conditions in the United States

The state of the U.S. economy can be described in a single word — crisis. Interest rates are just starting to go down from record highs. Inflation is near 20 percent. Unemployment is growing, especially in such key areas as automobiles and housing. We are entering a major recession — perhaps the worst since the Depression of the 30s.

The crisis in the economy is matched by a crisis in foreign policy. The Vietnam War left the U.S. military in a position where it could not intervene directly in wars of national liberation, such as that in Angola. A policy developed that had this dirty work done by client states, e.g., using Iranian troops to suppress rebellion in Oman. Through events like the Iranian revolution, this policy has collapsed.

The brunt of the economic crisis is being felt by those groups with the least political power. Thus an assault is being made on the living standards of poor and working class people, through such means as reductions in essen-



Affinity group meeting at May 1980 Seabrook action/Ellen Shub

tial social programs and wage settlements that come nowhere near meeting inflation. In addition, an attempt is being made to reinstitute cold war conditions, so that, for example, armed intervention in Iran can become a possibility. These policies have been singularly successful, partly because of the lack of large-scale, organized opposition. The resurgence of the KKK, the jingoistic support of the Olympic boycott and the "attempt" to rescue the hostages in Iran, and the positions taken by the major presidential candidates all indicate a dramatic swing to the right. The standard of living of poor and working class Americans has declined dramatically.

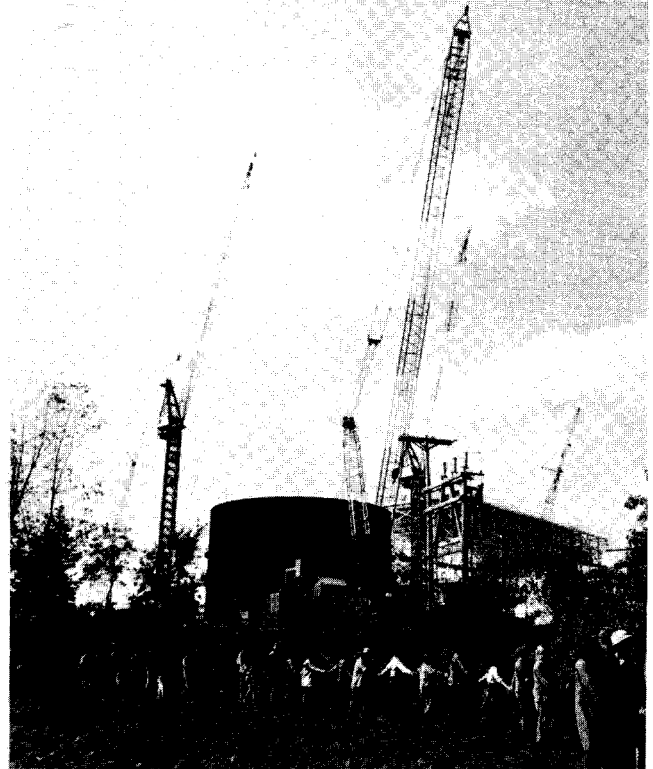
These factors have all tended to weaken the anti-nuclear movement. Issues of war and peace have become more important. A major anti-draft movement has developed again. People are concerned with economic survival. We are being told that we need nuclear power to stay ahead of the USSR. It is not surprising that the anti-nuclear movement has lost some of its vitality, especially since it is now over a year since Three Mile Island. What is impressive is that the movement has maintained the strength that it has. For example, on April 19, 10,000 people demonstrated against the plutonium plant at Rocky Flats, Colorado.(2)

Nuclear Power as an Issue

The primary motivation of people involved in the anti-nuclear movement is concern with safety and long-term environmental effects; the main demand, of course, the elimination of commercial nuclear reactors. The movement has had considerable success in satisfying this demand.

Nuclear power costs have soared compared to conventional ways of generating electricity. This is due in part to the installation of safety features, such as Emergency Core Cooling Systems, whose necessity was first pointed out by anti-nuclear activists. This increased cost, plus a slowdown in growth of electricity consumption and the recognition by utility executives that people will resist having unsafe plants built in their communities, has led to a rash of cancellations, postponements, or conversions to coal of nuclear plants. In the U.S., there have been only 13 orders for new plants since the beginning of 1974. In the same period there have been over 60 cancellations. In 1979 there were no new orders and 11 cancellations. (3) The rate of growth of electricity consumption, which historically had been 7-8 percent per annum, is currently only 2-3 percent.(4) With the onset of the recession, this rate will drop even more. New fossil fuel plant construction and improvements in existing plants have produced substantial excess generating capacity. Except for a few areas that are especially dependent upon nuclear power, such as Illinois and parts of New England, fossil fuel capacity exists today to replace nuclear power completely. Nuclear's share of total electricity production reached a

peak of 14.1 percent in November, 1978. Due to shutdowns because of questions of safety, both before and after TMI, nuclear's share had dropped to a low of 8.4 percent by May, 1979, *with no major blackouts or reductions in service*. Currently, nuclear's share is about 10 percent.(5) This is approximately 3 percent of total energy production in the U.S. With a minimal increase in effort in energy conservation and in developing alternative forms of energy production, commercial nuclear power could rapidly be phased out in the U.S.



Seabrook nuclear plant in construction/ Ellen Shub

It is important to realize that U.S. capitalism is split over nuclear power. For utilities owning operating reactors, nuclear plants are the cheapest way of generating base-load power, partly because of government subsidies. Huge investments already made force utilities to get plants under construction operating and into their rate base. In spite of the large number of cancellations, General Electric and Westinghouse, the two major manufacturers, have profitable nuclear divisions because of orders from Third World countries and for existing U.S. reactors, through service contracts and those improvements mandated by the Nuclear Regulatory Commission (NRC) following Three Mile Island. These improvements have been estimated by the NRC to come to over \$30 million per reactor, or over \$2 billion for the 70 or so reactors in operation in the U.S.(6)

Joe Shapiro teaches physics at Fordham University. He is a member of the North Manhattan local of the SHAD (Sound-Hudson against Atomic Development) Alliance.

Other capitalists oppose nuclear power, either because they consider it too risky an investment or they are involved in other forms of energy production. The Bank of America has announced that it will no longer finance new nuclear plant construction. Companies such as Pacific Power and Gas have made major investments in solar technologies. It is worth noting that when interest rates are high (about 17 percent as this is written), investments with low initial capitalization and high operating costs are favored over those for which the reverse is true. Thus, right now, coal is favored over nuclear, which in turn is favored over solar. As the recession deepens and interest rates drop, this order will tend to be reversed.

Nuclear power appears to be neither necessary as an energy source in the U.S. (at least in the short run) nor to be unanimously supported by big business. This implies that the struggle against commercial nuclear power can wholly, or in large part, be won within the structure of U.S. capitalism. It is a reform struggle within which the anti-nuclear movement has had some success, and will doubtless have additional successes in the future.

Political Potential of the Movement

I have just argued that the struggle against nuclear power can be won, at least in part, within the confines of our capitalist system. What then? Will the anti-nuclear activists go back to business as usual, or will they get involved in other issues? After all, the elimination of nuclear power, though a desirable reform, will not eliminate mass unemployment, inflation, racism, sexism, poor housing and health care, or any of the other products of monopoly capitalism.

The key question becomes: How does this particular reform struggle motivate the participants to work for the eventual replacement of capitalism as a social and economic system? I do not pretend to have anything resembling a complete answer, but would like to make two suggestions.

First, people need to believe that the alternative to capitalism is more desirable. Faced with the history of Stalinism in the Soviet Union and recent flip-flops in China, this is a significant stumbling block. Second, one must believe that the overthrow of capitalism is a real possibility. Again, this is not so easy to accept. Socialist revolution has yet to occur in an advanced capitalist country. In addition, there are no strong left organizations in the U.S. at this time. The working class is quiescent. Capitalism is in firm control. Thus one is talking about a long term proposition in a situation where the existing examples of socialist societies are far from ideal. How do people get motivated under such conditions? I believe that *people will work to replace capitalism only to the extent that they understand first, how capitalism functions as a system, and second, how their*

own activities fit into and support that functioning. This understanding is an essential part of believing both that socialism is an improvement over capitalism and that capitalism can be overturned.

This still leaves open the question of how this understanding develops. Here I would argue two points.⁽⁷⁾ First, it comes out of people's own experiences. Thus the importance of participating in direct actions. All such actions have limitations, and by confronting these limitations, people may develop a broader political understanding. Second, it is crucial to expose the role of the state. Many people believe the state represents *them*, through the candidates they elect every few years. In reality, the state represents capitalists as a class, and is an organ for maintaining the privileged position of that class. This fact is hidden in many ways. Particular groups of capitalists frequently are harmed by specific legislation and rulings, e.g., subsidies for airports and the Interstate Highway Act helped destroy passenger rail transportation. In theory, everyone gets equal treatment before the law but in practice only the wealthy do. It is important to get through these democratic forms to expose the underlying exploitative essence. From a tactical point of view, actions directed toward the state are of the utmost importance, as opposed to actions against small groups of capitalists.

Within this framework, the anti-nuclear movement has much to be said in its favor. The state has played a major role in the development of nuclear power, because of the close relationship between reactors and nuclear weapons. Though originally the movement relied exclusively on lobbying, education, and intervention in hearings and court cases, its tactics have expanded to include direct actions with large scale civil disobedience (CD), i.e., from complete legality to a willingness to undergo arrest. Participation in these activities has, in many cases, increased the level of political consciousness of the participants. In addition, the movement has gradually become more directed toward class issues. For example, consider the actions of last October 29. After years of protests against individual reactors or plants (against small groups of capitalists), there was a major demonstration at Wall Street (certainly a center for capitalist class interests) and a smaller demonstration in Washington at the Department of Energy (against the State). Finally, there has been a broadening of the issues involved. Originally, the anti-nuclear movement concerned itself solely with the safety of nuclear power and the threat of nuclear war. Today, a host of additional issues have been introduced, including the oppression of Native Americans (who get lung cancer from mining uranium in mines owned by large corporations but situated on Native American lands), the role of the government in subsidizing and promoting nuclear development, nationalization of the oil companies (which have large holdings in the uranium industry), high utility rates, and opposi-

tion to synfuel development. Support has been given to the struggle against reactor development in the Philippines.

Problems within the Movement

I have tried to argue that there is nothing revolutionary, *per se*, about nuclear power as an issue, and that its main potential is long-range: helping the development of political consciousness among its participants. I have further argued that this has started to occur. This has not been due to the conscious activities of "leftists" within the movement; rather it reflects the special nature of the particular issue (major involvement of the government, beginning with the Manhattan Project) and the growth of a substantial anti-monopoly movement in the U.S.

Unfortunately, the position presented so far is much too optimistic. The overall level of political development of the movement is low; there is strong opposition to broadening the issues. For example, the last of the five demands for the April 26 rally (8), to "honor Native American treaties," was added quite late and, apparently, after considerable debate.(9) The movement is almost exclusively white and petty-bourgeois. It is worthwhile examining some of these questions.

Practically everyone in the movement is in favor of nonpolluting, safe, renewable alternatives such as solar, wind and biomass. Great. But another prevalent view is that these technologies can be developed in small, decentralized ways, and that through this development new social relations will arise that will serve as a model for "restructuring society." Though this position has many positive aspects, such as fostering self-reliance, it must be rejected as utopian. It is an example of technological determinism, i.e., it assumes that new technological developments determine how society evolves, rather than technology and social forces mutually influencing each other. More explicitly, the development of decentralized renewable alternatives will not change the nature of monopoly capitalism — the banks will control loans, corporations will control patents, and the small-scale equipment will be mass-produced by large companies more cheaply than it can be made by the small entrepreneurs. A good example is solar collectors for home and hot-water heating. Several companies, including G.E. and Westinghouse, the two major manufacturers of nuclear reactors, are working on solar collectors made of evacuated tubes with selective coatings; G.E. is already marketing theirs, the Solartron.(10) Though more expensive than the "home-made" flat plate collectors, they are much more efficient. Further, both manufacturers have substantial experience in producing fluorescent light bulbs; this will enable them to introduce mass production techniques and cut costs. If G.E. and Westinghouse both fail in this venture, some



April 26, 1980 demonstration in Washington, DC./Ellen Shub

other corporation will eventually mass produce collectors cheaply and put the small flat plate manufacturers out of business.

The emphasis on alternative technology partially reflects anarchist tendencies within the movement. These tendencies also show up in the emphasis on consensus decision making. There has been interminable debate about the pros and cons of this technique, which is admittedly slow and unwieldy in some circumstances. It might be worthwhile noting that our SHAD local decided against using consensus when it formed last fall. To date all decisions have been reached unanimously, i.e., by consensus! The main problems within the anti-nuclear movement are political, not organizational. Blaming a particular form of decision-making is often a way of not discussing political issues. An attempt by a few individuals within SHAD to organize discussions

on the political goals of the organization was a dismal failure; it collapsed after one poorly attended meeting.

Historically there has been, and still is, a large pacifist tendency within the movement, as exemplified in the New York City area by the War Resisters League. This history accounts, to a large extent, for the continued emphasis on nuclear weapons as well as reactors. It also accounts for the emphasis on civil disobedience as a tactic and on nonviolence *as a principle*. I would certainly agree that the antinuclear movement should be non-violent, *as a tactic*. This is not based upon moral principles, however; nuclear power is a non-revolutionary issue in a non-revolutionary period in U.S. history. Under these conditions, violence would be counter-productive.

This emphasis on CD, though important in building the movement, has recently had some negative effects. People participating in CD operate in affinity groups, and under conditions where people get arrested, strong personal ties grow. Affinity groups can thereby develop a permanent existence. SHAD is an alliance of both affinity groups and geographically-based neighborhood locals. Within SHAD people have moved more and more out of the locals and into affinity groups; most locals have collapsed (ours is one of the few exceptions), and with them much of the organizing and outreach. Many of those involved in the movement seem to believe that organizing can be done by example, rather than by getting out and doing grass roots work.



Demonstrators storm fence at May 1980 Seabrook action/ Ellen Shub

Attempts to draw Blacks or Hispanics into the movement have been singularly unsuccessful. One difficulty is with the tactics employed. Undocumented workers, people on parole, and anyone who cannot risk being fired from their job by being arrested are excluded from participating in CD. Actions frequently are held outside the cities where most minorities live, and are expensive to get to. But this is not the whole story. Insufficient effort has been expended on combatting racism within the movement or on trying to understand the concerns and problems of minorities.

Where does all this leave us? The anti-nuclear movement has lost considerable momentum. On the other hand, nuclear power, and energy in general, will not disappear as issues. The movement will survive. But nuclear power is merely one issue out of many facing the Left. For the movement to remain dynamic and to increase the political consciousness of its membership, this issue must be tied to others. As pointed out above, this is beginning to happen. There are two recent developments, both in their infancy, that could accelerate this trend. Both also will cause internal problems.

One split that has existed within the movement is between those, e.g., Ralph Nader, Barry Commoner and Tom Hayden, favoring electoral activities and large legal rallies versus those favoring direct action with civil disobedience. Though there have been attacks back and forth, an uneasy truce has prevailed. However, the formation of the environmentally-minded, anti-nuclear Citizens Party has brought the question of electoral activity to the fore. Anti-nuclear groups and individuals will be forced to decide to what extent they are going to get involved. Because of the strong anti-electoral bias within the movement, and the emphasis on consensus, it is unlikely that many of the grass roots anti-nuclear groups will actually endorse the Citizens Party, but many anti-nuclear activists may support it.

Although for many it simply expresses rejection of the political process, the anti-electoral attitude has a perfectly valid basis: namely, that reforms are won through militant mass actions, not by appeals to politicians. However, this ignores electoral work as a means of education, or possibly as a way of getting people involved in mass struggles. Certainly the Citizens Party has limitations. It will not develop into a revolutionary organization. But it is a progressive party that has taken an anti-nuclear position. It has some potential for becoming a political force during a period when the country is rapidly becoming reactionary and when nothing else exists. Success of the Citizens Party will strengthen the movement. It's hard to see any rationale for members of the anti-nuclear movement *not* supporting it. But many won't.

The second and potentially more important development (because it involves a change in class composition) is the growing participation of trade union groups.



Citizens Party candidate BARRY COMMONER / Ellen Shub

Although many workers have supported nuclear power through counter-demonstrations at construction sites, there has also been a long history of union opposition. William Wimpinsinger, president of the Machinists Union, and Anthony Mazzochi of the Oil, Chemical, and Atomic Workers Union, have consistently been anti-nuclear. District 31 of the Steelworkers, representing 130,000 members, took a position against nuclear power in 1978.(11) Miners for Safe Energy, a rank and file group from Steelworkers Local 7044, which represents gold miners in Lead, SD, has been active in opposing uranium mining in the Black Hills (see Newsnotes, this issue).

Labor union support took a qualitative leap forward with the April 26 demonstration. Several union bodies endorsed a statement of support; these included the Machinists Union, the International Woodworkers Association, the American Federation of State, County and Municipal Employees (AFSCME), the International Chemical Workers Union, District 1199 Hospital Workers, Local 170 of the American Postal Workers Union, District 6 of the United Mine Workers and Local 65 of the Steelworkers. In part the statement said

We know that a cheap and alternate source of energy exists in immediate and almost inexhaustible supply - coal. Technology is presently available to mine and burn coal safely. A longer term goal is the development of other safe energy sources such as solar, water, wind, which would provide more jobs than producing nuclear energy.

Trade unionists should take the lead in this struggle for we truly have no alternative. Our lives and

the lives of our children are at stake. Every minute brings closer the danger of another Three Mile Island in the nuclear processing and nuclear power plants that continue to operate.

We have the power to shut these plants down and it is in our interests to do so. Many of these plants also produce the materials used in atomic weapons, weapons that, if used, would destroy the entire world. This madness must end. Working people have no interest in a world armed to the teeth with nuclear weapons.(12)

A well-organized and vocal group of coal miners and steel workers participated in the march and rally. However, their chant, "No Nukes, Use Coal", does not sit well with supporters of alternative technologies. This points out one of the dilemmas the movement faces. For years, it has been looking for worker and minority support. Now it may get both, since many of the unions mentioned above have large Black and Hispanic memberships. But the unions will also bring with them different positions, different tactics, different leadership, and a different political outlook. These will not be popular with large segments of the movement.

It is too early to say whether these developments will become important. The Citizens Party may flop. The majority of workers still support nuclear power. Trade union support may not continue to grow. However, either development would force a further broadening of the issues involved, and cause dramatic changes in the character of the movement. The anti-nuclear movement may never be the same again. □

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The Work of Raymond Pearl

FROM EUGENICS TO POPULATION CONTROL

by Gar Allen

Eugenics has been defined as the attempt to use theories of heredity to improve the genetic quality of the human species. During the first three decades of the 20th century, eugenics emerged as a wide-spread scientific and popular movement, both in Europe and the United States. Using the then-newly-discovered concepts of Mendelian heredity, eugenicists sought to show that much of human social behavior was genetically determined. In practical terms, eugenicists wished to restrict the breeding of those individuals they deemed to be socially unfit, and to encourage the breeding of individuals they deemed to be socially fit.

The eugenics movement had a wide-spread influence, particularly in the United States during the early decades of the 20th century, where it provided a quasi-scientific rationale for passage of the Immigration Restriction Act of 1924, and of sterilization and anti-miscegenation laws by over 30 state legislatures between 1907 and 1935. In Germany it led ultimately to the Holocaust with biological and genetic claims for the inferiority, and hence dispensability, of Jewish people.

The two currently standard histories of American eugenics suggest that the movement died out by the late 1930s or early 1940s, and that by that time its racist and elitist ideas had fallen into disrepute, especially in the scientific community.⁽¹⁾ But this picture of the later history of eugenics is greatly oversimplified, and obscures some of the most basic social processes which have shaped the face, and therefore the uses, of science. In fact the eugenics movement underwent a gradual but significant metamorphosis between 1920 and 1940 — a metamorphosis which, as in insect life cycles, caused the outward structure to appear very different while leaving the inner core largely unchanged. The new eugenic thinking took the form of the population control movement, which began to emerge in the 1920s but attained considerable force only after World War II. Beneath an apparently very different movement and web of goals, was the old eugenic ideology of the wealthy controlling the child-bearing practices of the country's, or the world's, poor.

Gar Allen teaches biology at Washington University in St. Louis. He has been active in the International Committee Against Racism.

In this article I will discuss the transition from eugenics to population control as it occurred in the work of one man, Raymond Pearl (1879-1940). Pearl is a useful and important figure for several reasons. He was a well-known biologist with a considerable reputation both in the United States and abroad. In the early decades of his career (1910-1925), Pearl was a strong and influential supporter of the eugenics movement. After the mid 1920s, however, he dissociated himself from the movement, severely criticizing its departure from scientific facts. At the same time he became one of the leading spokespersons in the United States on the issue of population growth and "overpopulation." On the scientific side he became an architect of modern demography and the statistical analysis of population growth; on the political-organizational side he became a national and international leader of various organizations aimed at controlling (i.e., limiting) the growth of the human population. Pearl's switch from support of eugenics to population control was not random or capricious. His developing ideas show a clear ideological transition: in his mind the social value of each of these movements was the same, a desire to improve society through the use of known biological principles. As his support shifted from eugenics to population control, Pearl's view of the causes of social problems did not change; what changed was the particular biological form in which he sought an explanation — and a solution.

An early association with Karl Pearson and Frances Galton in London in 1905 and 1906 was undoubtedly responsible for Pearl's early interests in biometrics and biostatistics on the one hand, and in eugenics on the other. Several of Pearl's early papers show clearly how the two subjects were closely intertwined in his thinking. In a biometrically-oriented paper of 1905, he emphasizes the correlation between brain weight and race. And in an eugenically-oriented paper in 1908, "Breeding Better Men," he argued from biometrical data that moral and mental traits are inherited, and can be bred in or out of a population depending upon the selective measures applied.⁽²⁾ He defined eugenics as "the science which deals with all influences that improve the inborn qualities of a race, also with those that develop them to the utmost advantage; and it embodies the study of agencies under social control that may improve



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or impair the racial qualities of future generations." To Pearl, eugenic considerations were vital to the future of the human species. Something must be brought into play to replace crude natural selection:

This eugenics aims to do. Its fundamental assertion is that the continued improvement and betterment of the human race, either physically, mentally, or morally, cannot be insured, nor can its degeneration be prevented, solely and entirely by adapting the environment to man. On the contrary, attention must be paid to the fundamental biological makeup of man himself. The unfit, the great body of physical, mental and moral derelicts, must not be allowed to reproduce themselves indiscriminately as they now for the most part are. And further, every legitimate effort possible must be made to encourage the reproduction of the fit-test.(3)

Although Pearl admired social Darwinism, he was of that later generation which could not accept the crudities and harshness of a completely laissez-faire attitude toward the "unfit." As he wrote in 1908: "Our highly developed human sympathy will no longer allow us to watch the state purify itself by aid of crude natural selection. We see pain and suffering only to relieve it, without inquiry as to the moral character of the sufferer or as to his national or racial value."(2) To Pearl the value of eugenics was that it was based upon science and scientific methods. "Hitherto," he wrote, "everybody except the scientist had a chance at directing the course of human evolution. In the eugenics movement an earnest attempt is being made to show that science is the only safe guide in respect to the fundamental of social problems."(4) Eugenics was the rationalist approach which would lead human evolution along a positive course.

Pearl believed that both physical and mental or moral traits are largely inherited in human beings. He calculated correlation coefficients between fathers and sons, brothers and sisters, for such characteristics as "temper," "vivacity," "assertiveness," "conscientiousness" and claimed that the correlations were all about .5! Pearl noted: "It might appear at first thought that such characters could not be treated metrically, because no one of them can be measured in the individual with absolute accuracy. But such is far from the case. Developments of higher statistical theory make it possible to treat data of this kind with quantitative precision."(2) Pearl's statement is curious, for it is obvious that the quantitative measurement of a trait is quite different from the statistical analysis of the measurements of that trait, once taken. No matter what sophisticated statistical techniques are available, nothing enables one to get around the problem of measuring an unmeasurable entity. Pearl's dodge here represents the same biased view that lies behind the I.Q. argument.

Pearl went on to argue that the way to increase or decrease the presence of specific mental and moral traits in the human population would be through the same avenues as used for physical traits: selective breeding. Thus, he favored the two-pronged approach popular among eugenicists at the time: (1) positive eugenics — encouraging the morally and mentally fittest individuals in society to have more children and (2) negative eugenics — discouraging morally and mentally "degenerate" individuals from having many, or any children. Ultimately, Pearl hoped the government could be persuaded to take this matter seriously and institute corrective procedures and programs on a large scale. He noted with enthusiasm that eugenics "is 'catching on' to an extraordinary degree with radical and conservative alike, as something for which the time is quite right."(5)

Pearl's Criticism of Eugenic Principles and the Eugenics Movement

However, by the post-war period Pearl had become aware that eugenics, and its parent science genetics, were drifting further and further apart. When it was proposed that the eugenicists hold their international congress in 1921 co-jointly with the International Genetics Congress, Pearl opposed the move because he thought eugenics as a *movement* was beginning to lose touch with modern findings in genetics. If eugenics were to serve any function, it was to provide a scientific basis for the rational control of human evolution. To the extent that eugenics got away from rationality (i.e., science) and became more and more of a propagandistic enterprise, Pearl lost sympathy with it. While even in the early days (prior to World War I) eugenic thinking had never been as objective or rational as its proponents claimed, in the post-war period eugenicists made increasingly unfounded claims for the validity and scientific basis of their conclusions.



By 1927 Pearl had lost all patience with standard eugenics. He wrote a scathing attack on eugenics and the eugenics movement in H. L. Mencken's influential journal, *The American Mercury*. Titled "The Biology of Superiority," the article took eugenicists to task for their hasty generalizations and propagandistic tendencies.⁽⁶⁾ Pearl pointed out that much of modern eugenics is based upon the idea of "ancestral heredity" derived from Galton. Two modern discoveries in genetics, he emphasized, had undercut Galton's basic notions: Johannsen's pure line selection experiments with beans, and Mendel's laws of segregation and random assortment. Both theories emphasized that it is impossible to determine with any certainty the genotype of an organism from an inspection of its phenotype. Like Johannsen's experiments, those of Mendel show that two organisms that look alike phenotypically may be quite different genotypically. Eugenically speaking, Pearl pointed out, one cannot necessarily obtain superior offspring by breeding phenotypically superior parents. Many individuals who appear healthy and vigorous may actually be carriers of defective (though recessive) genes. The only true way to determine parental genotypes is through experimental breeding. This was exactly what eugenicists could not do. As Pearl pointed out, the only certain guarantee of the worth of any individual for breeding of superior forms is not the superiority of that individual, but the superiority of its progeny. The central fallacy of modern eugenics, according to Pearl, lies in the fact that "like does not produce like."

To demonstrate his claim that like does not necessarily produce like in human beings, Pearl surveyed a thousand individuals of distinction in the

Encyclopedia Britannica. His criterion for "distinction" was, he claimed, highly objective: having a full-page or more of coverage in the thirteenth edition (1926). Pearl then searched out the parents of these famous individuals to determine to what extent they (the parents) also appeared in the encyclopedia. He observed that the parents of most of the eminent individuals with whom he had started were not even mentioned; in most cases, those that were mentioned received far less space (measured in millimeters), than the original sample. With regard to this parental group, Pearl concluded rather drily: "Some of these parents would have been segregated or sterilized if the recommendations of present day eugenical zealots had been in operation. And I estimate that a good half of these fathers would have been urged to curb their reproductive rate in the interest of the 'race' "⁽⁷⁾

From Eugenics to Population Control

In a paper delivered before the Second International Congress of Eugenics in 1921, Pearl described how he began to relate the quantitative issues of population control to qualitative issues of eugenical breeding. Pearl opened his paper by asking what happens "when a living organism capable of indefinite multiplication of its numbers by reproduction finds itself confined to a universe strictly limited in size?" Pearl put the question to an experimental test with the fruit fly. He placed a pair of flies with 10 to 12 of their offspring into a pint milk bottle and censused the population every three days. He showed that the change in the fly population exhibited a smooth, s-shaped curve. In another paper published a year earlier, Pearl and L. J.

Reed had mathematically analyzed a human population growth curve and found it to be essentially the same. To Pearl the implications of this were profound:

It is evident enough that since the same mathematical theory which described the growth in experimental *Drosophila* [fruit fly] populations also described that of human populations, it is in the highest degree probable ... that human populations in limited areas grow in essentially the same manner as experimental population in closed universes. In other words, population growth in respect of its rate appears to be a fundamental biological phenomenon in which insects and men behave in similar manner.(8)

Pearl felt that he had discovered a biological law regarding growth of organisms. He attempted to strengthen his argument even more by claiming that the curve for population growth followed the same pattern as a curve for the growth of individual organisms from egg to mature adult.

To Pearl there were important implications of discovering a regular law of population growth. The ability to describe population growth of many different organisms by the same mathematics suggested an identical and underlying biological cause. Furthermore, if human population growth was indeed subject to the same laws as fruit flies, then it was possible to predict with some accuracy the demographic future of the human species. Using the regular curves of population growth, Pearl extrapolated to the point in time at which any given geographical region of the earth would be saturated with human beings. Thus, he concluded, the planet could not go on indefinitely supporting more and more people. How, Pearl asked, was the problem to be solved? The answer was simple: by limiting reproduction. There were three basic methods of achieving this goal: (1) by operative interference (such as sterilization), (2) by segregation of the sexes, or (3) by "birth control," meaning contraception. To Pearl it was the latter which offered the most hope from both a practical and an ethical (or religious) point of view.

But birth control *per se* was not enough of an answer, Pearl argued. Birth rate deals only with quantitative, and ignores the more important qualitative, changes that occur when population growth occurs unchecked. Pearl was particularly concerned with the question of differential fertility:

Projecting our thought ahead a moment to that time, at most a few centuries ahead, we perceive that the important question will then be: what kind of people are they to be who will then inherit the earth? Here enters the eugenics phase of the problem. Man, in theory at least, has it now com-

pletely in his power to determine what kind of people will make up the earth's population at saturation.(7)

In Pearl's view all available evidence suggested that the lower socio-economic groups were greatly out-reproducing the higher. The spectre of "race suicide" was raising its head.

Between 1915 and 1925 a number of eugenicists had pointed out that positive eugenics (encouraging the superior stocks of the human species to have more children) had been a notorious failure. The movement had thus been left with only negative eugenics as a means of reducing the supposedly disastrous consequences of high birth rates among the poor and socially defective classes. Negative eugenics — i.e., sterilization, contraception, etc. — lead directly to the concept of birth control.

Thus, Pearl's interest in the population control movement arose out of his conviction that (1) the orthodox eugenics movement had floundered on subjective and prejudicial science, and (2) positive eugenics was simply not working. Population "control" really meant population selection. According to Pearl, birth rates of those people deemed to be biologically degenerate, or defective, would be the targets for social action. As Allan Chase has succinctly put it, in the early decades of the century the programs for birth and population control were aimed directly at the gonads of the poor.(9) Population control was little more than eugenical thinking applied on a global scale.

Pearl and Population Control: Ideology and Institutionalization

Raymond Pearl did not, of course, invent the population problem, nor was he the only one to evince an interest in it in the 1920s and 1930s. Thomas Robert Malthus (1766-1834) brought the issue into focus most explicitly in the late eighteenth century, and has been quoted ever since as the major scientific ideologue of population control. Pearl was a great admirer of Malthus, claiming that the latter's *Essay on Population* was "one of the greatest books the human mind had produced, so far ahead of its time that in the main his argument is truer and more significant today than it was when he wrote it."(10) And, to many of Pearl's biological friends, such as E.M. East and W.E. Castle at Harvard, the prospects of overpopulation were all too real. The solution to overpopulation was population control, an idea the neo-Malthusians began to develop into a widespread movement during the 1930s. Pearl was one of the instrumental figures, both as an ideological and organizational leader, in helping to build this movement. He contributed to it an explicit wedding of eugen-

ical ideology (the question of qualitative control) with the neo-Malthusian doctrine of overpopulation (quantitative control).

In his more strictly scientific studies of population, Pearl investigated growth rates of various socio-economic classes, the relative distribution of age groups in different populations, longevity (duration of life), the vital statistics for various groups in the social hierarchy (e.g., American Blacks, or members of the National Academy of Sciences), the relationship between alcohol and duration of life, the biology of death, and, finally, various methods of contraception. Pearl's intense interest in birth control and population control is further indicated by the large number of popular articles he wrote and the public lectures he gave during the last 15 or 20 years of his life. He became unquestionably the most vocal exponent of population control ideology within the scientific community. He was the Paul Ehrlich of his day.

Valuable insight into Pearl's public and popularized views on overpopulation can be found in his scrapbooks, which contain clippings of nearly all of the major newspaper and magazine articles describing Pearl's work or summarizing his public lectures. That Pearl participated in the somewhat sensationalistic aspect of population control ideology is evidenced by both the titles of his own articles, and the headlines of newspaper accounts of his lectures. For example, the headline for an article in the *Baltimore Sun* of November 7, 1925 runs: "Population pressure will cause future wars, Dr. Pearl predicts" with the following subtitle: "Hopkins scientist says two hundred million persons is a safe limit for the United States — world saturation in sight, his opinion." The *Cincinnati Post* of June 22, 1926 has the following series of headlines for an article on population control:

Fly Universes are Proof

Scientists show earth can hold only five-billion-two-hundred-million

Similar to insects

Maximum population of U.S. is one-hundred-seven-million

The various articles have one theme in common: the world's population growth rate is such that the maximum carrying capacity of the planet will have been reached in the next 75-100 years; this poses a serious threat not only to the future of the world's ecosystem, but also to the biological (genetic) quality of the entire species; the question was not should there be birth control, but how much and for whom? To Pearl the answers were straightforward: How much? Considerable! And for whom? The genetically inferior.

Pearl was eager to obtain various kinds of financial support and build organizational and institutional bases

for population studies and the propagation of population control ideology. Through his long-standing friendship at John Hopkins Medical School with William H. Welch, who by the 1920s was closely associated with the Rockefeller Foundation, Pearl proposed that the Foundation fund a research center, to be called the Biological Institute, at John Hopkins University. The purpose of the institute would be to study aspects of human biology, particularly those related to reproduction and fertility. After much negotiation the Rockefeller Foundation gave Pearl a sizable grant in 1924 (\$175,000 for a five-year period) to organize the institute.



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In addition Pearl was instrumental in founding an international group to develop and coordinate population studies in various countries. In this project Pearl was joined enthusiastically by his colleague at Harvard's Bussey Institution, E.M. East. The organization was to be called the International Union for the Scientific Investigation of Population Problems (IUSIPP).

Pearl and East made the point vigorously that biologists should be represented strongly on the organizing board of the IUSIPP. This was the only way, they argued, that the study of population growth could avoid the kind of errors to which the old eugenics movement had been prone. Despite Pearl's and East's personal prestige and intellectual arguments, however, the Rockefeller Foundation was reluctant to become involved in the IUSIPP, largely because the Foundation feared that its name would be associated with an overtly political, rather than a covertly political (i.e., *scientific*) organization. Ultimately the matter was resolved by the Rockefeller Foundation joining with the Millbank Memorial Fund in a collaborative funding effort, totalling \$60,000 over a three-year period.

The involvement of the Rockefeller Foundation in population studies in the 1920s did not represent a wholly new direction in its ideological development. Like Pearl, the Rockefeller Foundation also made a transition (though less dramatic) from interest in and support of eugenical projects, to those related to population control. In the first decade of its existence (roughly 1916-1926), the Foundation funded a variety of projects which were largely eugenical in nature: a long series of investigations on human migration, on organization called the Bureau of Social Hygiene, and its stepchild, the Criminalistic Institute, among others. Although the

older, more blatant eugenics movement had been directly funded by the Carnegie Institution of Washington, the Rockefeller Foundation had poured considerable sums into studies of inheritance of social behavior, particularly crime, "degeneracy" and so-called social deviance. Partly under Pearl's influence, and later guided by more moderate eugenicists such as Frederick Osborn, the Rockefeller Foundation began to assume increasing interest in population questions by the early 1930s. In 1952 John D. Rockefeller III (not the Rockefeller Foundation *per se*) was instrumental in setting up the Population Council, one of the major private funding organizations in the post-war era for studies of family planning and population control. The director of that organization was Frederick Osborn, who throughout the pre-war period had maintained close ties with staunch eugenicists such as Madison Grant and Harry Laughlin.

What is interesting to note is that the funding for population control was vastly greater in the 1930s and especially after World War II, than was that granted to orthodox eugenics, even in the latter's hey-day. For example, the Carnegie Institution of Washington allocated an average of about \$125,000 a year between 1918 and 1939 for the total budget of the Station for Experimental Evolution and the Eugenics Record Office at Cold Spring Harbor. Of this, only an average of about \$21,000, or 16 percent, went for eugenics *per se*. By contrast, the budget of the Rockefeller-funded Population Council for its first year alone (1952) was \$250,000. To this new development Pearl became for the Rockefeller Foundation and the ideology of population control what C.B. Davenport had been for the Carnegie Institution and eugenics: a well-known, respectable biologist who could help to formulate a biological explanation of, and solution for, recurrent social problems.

Conclusion

Throughout his work in both eugenics and population control what remained constant in Pearl's thinking was: (1) the belief that most human social problems were largely biological in origin and (2) the fear that lack of proper biological knowledge, coupled with an unwillingness to use that knowledge to guide and regulate the human reproductive process, would lead to a serious decline in the *quality* of the human species. He never abandoned the idea that the socially or economically disadvantaged were also biologically disadvantaged. Where he began to differ with many of his eugenical colleagues was over two issues: (1) the exact genetic mechanisms producing socially defective groups, i.e., the one-gene-one-trait view of the old-line workers such as Davenport and Laughlin and (2) the failure of eugenicists to consider qualitative changes within a population in a quantitative context. From his background in biometrics and animal breeding, Pearl

knew that qualitative changes within a population had to be viewed in terms of overall population size and its rate of growth. It was obvious there was no sense in breeding from a few so-called "good" family lines while the rest of the population, of questionable or even neutral hereditary quality, was being allowed to expand at a logarithmic rate. Eugenics made no sense without population control; but at the same time population control made no sense without eugenics. Pearl's elitism about social groups other than his own may have been less overt than the old-style eugenicists, but he had the same aims at heart.



Lorraine Schein/LNS

Conservative to the core, Pearl once said that one of his greatest heroes in the history of American sociology was social Darwinist William Graham Sumner. As a member of two conservative citizens' organizations, The Association for the Defense of the Constitution and the Maryland Free State Association, he claimed that President Franklin Delano Roosevelt was, at one and the same time, leader of both the American fascist *and* communist movements! In the mid-1930s, he took a soft, even agnostic position on the dismantling of German universities by the Nazi regime, and tried to discourage at least one member of the Galton Society (a eugenic organization of which Pearl was a charter member) from resigning because the society's publication, *Eugenical News*, had carried articles favorable to Nazi race-hygiene. With regard to the situation of German universities, Pearl wrote to his colleague C.F. Close in 1934:

There is a very strong and widespread feeling among university men in this country against the

policy of the Hitler Government relative to universities. Personally, I may say that I do not share this feeling quite as completely as do some of my colleagues, because I am disposed to believe that there was at least some measure of justification for the policy upon which the German government embarked. This view means no more than that I am constitutionally predisposed to the view that every question has at least two sides, and I am also predisposed to look at and give consideration to all sides of a question about which I can get information.(11)

A year later, in attempting to dissuade another colleague, W.K. Gregory, from resigning from the Galton Society, Pearl indicated that he was somewhat less sympathetic with German fascism than he had been in 1934; yet he opposed Gregory's strong act of protest on the grounds that science and politics should be kept apart:

In considerable part — indeed probably wholly — I share your views about the current political philosophy of Germany, but I must reluctantly confess that I am not clear as to the wisdom of your action in the premises. I have a deep conviction, which I believe you really share yourself, that political considerations should never be allowed to play a part in science, and it does seem to me . . . that your action in this case is motivated by political rather than scientific considerations.(11)

What is particularly ironic, in light of the above statement, is that Pearl's writings show a constant interest in the relationship between biology and socio-political issues. Furthermore, on more than one occasion Pearl wrote openly and disparagingly of racial or ethnic groups different from his own. He once claimed that "The Scotch are a people particularly subject to insanity in all its forms,"(12) and felt that the Irish were evolutionarily retarded.(13) Particularly strong was his rather generalized anti-Semitism. In a letter to E.M. East in 1927, Pearl spoke out sharply about Gregory Pincus, who was then a colleague of East's at Harvard (and a rather controversial, but brilliant, developmental biologist):

By the way, who is this Jew of yours named Gregory Pincus who writes me that he wished me to prepare for him "at my earliest convenience" a comprehensive list of references to literature on sterility. . . just how did he ever get the notion that I have no other amusements in life except making bibliographies for lazy Jews?"

These quotations suggest just how ingrained was Pearl's hierarchical and elitist view of human beings. With such deep-seated beliefs, combined with funding from Amer-

ica's leading ruling-class foundation. Pearl could not have helped but give the ideology of population control a heavily racist and elitist tone.

In the period 1920-1940 Pearl was by no means the only biologist or reformer to transfer his enthusiasm specifically from the eugenics to the population control movement. Among those who made a similar transition were S.J. Holmes, zoologist at the University of California, Berkeley; Edward A. Ross, sociologist and Progressive reformer from the University of Wisconsin; and Frederick Osborn, financier and deputy to the Rockefeller interests. This trend suggests that the ideology of the older eugenics movement did not die out by 1940, as has been claimed, but that a general transformation took place in which the same basic view of human social problems — their origin and their solution — was recast in a different mold. The common assumption of eugenicists and population control advocates was the notion that social problems are caused by innate biological factors — our "human nature." Whether that "nature" is genes for specific social behaviors, or a more general "reproductive capacity," the argument is essentially the same. It was the same in Pearl's view of eugenics, and later in his view of population control. It was, in metaphorical terms, the "old wine in new bottles."□

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PESTICIDE CONNECTION

(continued from page 10)

received \$161,450 in chemical company gifts in fiscal year 1977-78. The funds came as 139 grants to 31 different farm advisors. Usually amounting to no more than \$500 to \$2,000, the grants are earmarked for use by a specific farm advisor. The gifts are used for research on pesticide effectiveness. Mini-grants have evidently deflected farm advisors from giving pest control advice to merely evaluating chemical products.

Curiously enough, the Smith-Lever Act, enacted by Congress in 1914 to create the nationwide extension service, specifies that the principal function of the farm advisor is to educate farmers about the research of professors in the Land Grant Colleges. In California, the extension service does quite a bit of research on its own. J. Vernon Patterson of U.C. Extension reported that the farm advisors were conducting about 75 percent of the University's testing of pesticides for vegetable crops.(12)

Many of the farm advisors' recommendations are for specific brand names of pesticides. Farm advisors frequently recommend the brand names of products manufactured by their mini-grant supporters. Pesticide Extension specialist Michael Stimman says that growers want University publications to cite brand names and not the generic ones because millions of dollars of chemical company advertising have taught them only these brand names. Farm Advisor recommendations are not necessarily based on University tests, according to Stimman. Manufacturers' claims are considered to be a reliable source of information. "In most situations though, the researcher has had hands-on experience with the chemical," says Stimman, who adds that "there is a difference between having experience with a pesticide and conducting a controlled scientific experiment."

Richard Doult, a retired research entomologist from U.C. Berkeley, studied the effectiveness of the insecticide Sevin and found that it was reducing grape growers' yields. Doult says he had "excellent proof" that Sevin was causing crop loss by interfering with berry set, and asked the Farm Advisors to remove it from their list of recommendations. They refused to strike it from the list, a move that Doult says "was due to the power of the chemical companies over Co-operative Extension." He adds, "Chemical company grants can't help but influence University scientists."

Win Hart, a professor of nematology at U.C. Davis, recently testified at a federal hearing that some mini-grant sponsored research into the effectiveness of new pesticide products is reported on a confidential

basis to the manufacturer. Hart testified that he and other scientists have reported to the chemical manufacturer that a new product does not work, but that the company has gone ahead and marketed the pesticide anyway.

U.C. Extension entomology specialist Clancy Davis says that the Farm Advisors have encountered a "research gap" that has impeded the development of IPM in other crops. Not enough basic research has been done. The biological control scientists blame the research gap on a shortage of funds, and an unsympathetic University administration. "Obviously there are no chemical companies that come down here to give us money," says Don Dahlsten of the Division of Biological Control. "We spend all our time chasing after little grants."

"The budget for biological control, in terms of real dollars, is shrinking at a phenomenal rate," says Andy Gutierrez. "It's going down the tubes fast. I doubt that we have 10 percent of the operating budget in terms of effective dollars that we had in 1968." Recognizing the financial squeeze, Gutierrez went to the University administration in 1972 to ask it to submit a bill to the state legislature for a special appropriation for IPM research. "The thing never got off the ground," he says.

In 1975, the administration launched an effort to eliminate the Division of Biological Control by merging it with the more chemically oriented Division of Entomology. The eight biological control scientists would lose their autonomy and become part of a 35 member department. Robert van den Bosch would be stripped of his position as Chair of the Division of Biological Control. "You could write a scenario of agribusiness putting pressure on University officials — get these people off our back," says Dahlsten, who joined his fellow scientists in fighting the consolidation tooth and nail. After an outpouring of support from scientists throughout the world, the U.C. administration abandoned its plan.

The new pest control approach was given a big boost when the National Science Foundation (NSF) and the Environmental Protection Agency (EPA) jointly funded a six-year nationwide program to develop IPM for five crops and the pine beetle. Headed by Carl Huffaker at the Division of Biological Control, the program developed a short season cotton cropping system that increased the profits of Texas farmers by \$150 an acre. It also introduced a wasp into Florida citrus groves that has parasitized scale insects, saving growers \$10 million a year in reduced insecticide costs.(13)

Finally, after seven years of lobbying and numerous study committees, the persistence of Andy Gutierrez and his fellow scientists paid off. The state legislature has granted the University's \$1.1 million request for funds to do Integrated Pest Management research and extension. The funds are to be used for research grants, a computer to process research data, pest



control manuals on IPM practices for several crops, and to hire 5 IPM Farm Advisors. The first year of the program has been spent appointing advisory committees, planning, and writing and reviewing grants proposals.

III.

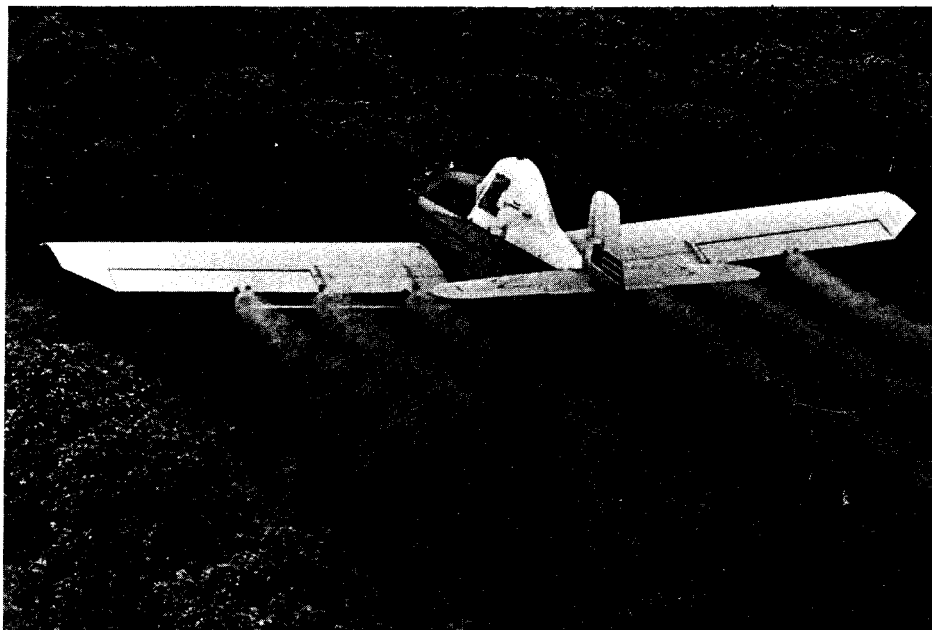
Alfred Boyce, former Dean of the College of Agriculture at U.C. Riverside, said that University researchers have come to regard close cooperation with the chemical industry as part of their job. "I can remember a time when it was not considered ethical by some Federal and State (Experiment Station) workers to associate with representatives of industry, either professionally or socially," said Boyce. "That attitude began to disappear in the mid 1930s, and I think had completely disappeared by the end of the war." In place of an adversary relationship, he said, a cooperative effort has developed, where University researchers help generate the data that chemical companies need for convincing government agencies that their products are safe and effective. Public research agencies, he added, invest

Don Crosby, an environmental toxicologist from U.C. Davis, has supported continued use of 2,4,5-T before both the state and federal government.(15,16) The herbicide was a component of Agent Orange, the jungle defoliant used in the Vietnam War. More recently, seven million lbs. per year have been used in the U.S. to treat forests, rice fields and grazing land.

The controversy over 2,4,5-T centers around its minute but inevitable contamination by a by-product of the manufacturing process, the dioxin TCDD. TCDD is one of the most toxic molecules ever discovered. It is able to cause birth defects and miscarriage in animals, at extremely low concentrations. Crosby's research showed that when TCDD is spread on a dish and set in the sun, it is broken down into harmless products(17). With the authority of the prestigious University of California, his study became a key argument in the defense of 2,4,5-T. Crosby has received \$24,900 in gifts from the manufacturer, the Dow Chemical Co.

Crosby's studies did not, however, include actual measurements taken in areas where 2,4,5-T has been used. As he himself wrote, "no actual measurements of dioxin dissipation from herbicide treated forests appear to have been reported."(18)

To bridge this research gap, the state asked Crosby



Environment

about as much money in doing this research as the chemical manufacturer does.(14)

The scientific expertise on particular products is often developed by research projects that have been supported by a manufacturer's grant. The professors who become "expert witnesses" at government regulatory proceedings are frequently subject to a conflict of interest. They may feel obligated to their research sponsor for past assistance, and they are concerned about future grants.

to help with additional tests. "What we did was to put plastic panels out where a spraying operation was going on, and collect these panels after different periods of time, measuring the amount of dioxin that was present," he says. The expense and difficulty of measuring minute quantities of dioxin prohibited him from monitoring dioxin levels in soil, trees, or water courses.

U.C. plant physiologist Boiesie Day has also been active in the defense of the herbicide, testifying before hearings of the state legislature and department of agri

culture. He is so firmly convinced that the chemical is safe that he ate some of it for a television news program filmed in his Berkeley laboratory. "I was demonstrating that 2,4,5-T is not acutely toxic," says Day, the former director of U.C. agricultural research.

Boysie Day and Don Crosby were appointed to a scientific task force that recommended continued use of 2,4,5-T, saying, "The evidence indicates that the TCDD contaminant in 2,4,5-T is well below levels hazardous to humans and other organisms." (19)

"Our participation in the committee," says Day, "came with the support of the Council on Agricultural Science and Technology (CAST)." Based at Iowa State University, CAST calls itself a "consortium of scientists" who provide key information to government decision makers. The organization receives tens of thousands of dollars of support from at least 36 different chemical manufacturers, including the Dow Chemical Co.

In April 1978, eight women from Alsea, Oregon petitioned the Environmental Protection Agency, asking it to ban 2,4,5-T. Among them they had suffered 11 miscarriages between 1973 and 1977, which they felt were caused by the herbicide. "We are not trying to make rash, unsubstantiated claims," they wrote, "but we are interested in seeing if there is a cause-effect relationship. Some of us do know that large acreages near our homes and in our water drainages were sprayed within a month before our miscarriages."

When a study of Oregon hospital records showed the miscarriage rate in Alsea to be significantly higher than the rate in a control area, the EPA issued restrictions on the use of the herbicide. "The Alsea study has all the dignity of a rumor," says Boysie Day. "It was a political decision by the EPA, plain and simple. There is no danger to people from 2,4,5-T use," he maintains.

The University of California has a program to provide information on pesticides that are suspected of being a threat to public health or the environment, to the Environmental Protection Agency. The objective of the program is to submit both risks and benefits data," says Harold Alford, U.C. Pesticide Impact Co-ordinator and director of the program. A committee is formed to provide the EPA with information on the suspect pesticide. The committee includes University professors, state officials, and representatives of the manufacturer of the pesticide, or lobbyists from pesticide industry associations. Scientists from the University school of medicine have never participated in a committee. Nor has the program invited labor unions, state OSHA officials, or environmental groups. Many of the University scientists appointed to these committees received mini-grants from the manufacture of the pesticide.

"We are gathering largely benefits data," acknowledges Alford. "Sometimes we rebut the risk, but in most cases we don't. As a rule, we spell out the need for a chemical in California, how important it is, and why we

need to keep it." He adds, "If we came by information showing a greater risk than EPA knew about, then we'd send it to them. We haven't done that though, because we don't get that type of information."

Outside of this program, however, information that the University scientists discover on the safety and effectiveness of chemicals is not usually reported directly to the government agencies that register pesticides. Since chemical companies are responsible for submitting the data, they have the option of turning over only those studies which put their products in the most favorable light. Government agencies consider this registration data a "trade secret" and none of it, not even the University studies, is open to the public.

By some estimates, pesticide-induced illness makes agricultural work one of the most dangerous occupations in California.(20) Virtually every year there are dramatic episodes of workers falling ill, involving as many as 100 people working in a single orchard or vineyard. "Occupational injury from pesticides is a subject of great concern from the public health standpoint," said state Health Director Dr. Louis Saylor in releasing the results of a 1969 survey of more than 1,000 farm workers. The public health study found that 25 percent of those surveyed had sought medical treatment for pesticide poisoning in the previous year.(21) "A large percentage of pesticide-related injuries involve serious, disabling illness," said Saylor.

On the job poisonings have been largely attributed to organophosphates, potent insecticides which harm both insects and humans by interfering with the nerve enzyme cholinesterase (a strong nerve stimulator). Many organophosphates degrade into even more toxic compounds which may be absorbed through the skin by touching treated crops or foliage. Residues are also toxic when inhaled. Symptoms of this kind of poisoning include nausea, tremors, vomiting, headache, cramps, weakness, and impaired breathing.

Pesticide safety became a key issue delaying the resolution of the California table grape boycott. Negotiation over safety provisions caused an extra one year of delay before contracts were finally signed between the United Farmworkers Union and 28 Delano grape growers in 1970. That year, the Health Department investigated four more mass poisonings, involving 175 workers in San Joaquin Valley citrus groves. Occupational Health Chief Thomas Milby headed up a task force which was appointed to help resolve the worker safety problem.

Out of Milby's group came "worker re-entry intervals," state regulations ordering workers to stay out of orchards for a specified time after spraying. FMC-Niagara Chemical Co. protested the new regulations arguing that the 30-day waiting period required for its organophosphate product Ethion could be shortened to seven days.

A safety trial was set for an orchard near Lindsay, California. J. Blair Bailey, the pesticide safety specialist in the University of California Co-operative Extension, helped with the test. "We set up the orchard, did the application," says Bailey. "It was a co-operative study with FMC." FMC-Niagra supplied the doctor who took blood samples from workers, and analyzed the cholinesterase level.

The Agribusiness Accountability Project, a public interest group, charged that the chemical company used "human guinea pigs" to test dangerous chemicals in violation of the new re-entry standards.(22,23) Field researcher Al Krebs said the subjects were not volunteers, and were not informed of the experiment's dangers. The test included a 24-year-old man under treatment for chronic headaches, a 44-year-old man with diabetes, a 15-year-old girl with a recent skull fracture, and a 38-year-old woman suffering from anemia.

"Some people accused us of using these people as guinea pigs, but we weren't," says Bailey. "I was working right alongside them, and didn't subject them to anything I wasn't subjected to."

After several trials with different chemicals, Bailey reported that workers could re-enter orchards sooner than the new state regulations allowed. He recommended that the state Dept. of Food and Agriculture shorten the reentry time for parathion, an organophosphate that is the most common cause of the mass poisoning of field crews.(24) A later University study, by Robert Spear of the U.C. School of Public Health, showed Bailey's recommendation to have been ill-advised, and that the re-entry period was actually too short.(25,26)

A group of scientists headed by Wendell Kilgore at U.C. Davis studied the health of workers who entered a peach orchard recently sprayed with the insecticide Guthion.(27) While the study was in progress, one worker refused to give any additional blood samples. He was fired from the picking crew, and complained to state officials. The grievance eventually reached the Director of Health, Dr. Jerome Lackner, who was so angered by the coercive nature of the tests that he successfully obtained a directive forbidding the use of farm workers in future experiments. Lackner suggested that the University scientists should seek ranch managers, professors or University regents to be the subjects of future tests.

When the U.C. Davis Guthion study was complete, the chemical's manufacturer, Chemagro, used it to petition the state to relax the reentry standard. Dr. Keith Maddy, head of the Worker Safety Unit of the Dept. of Food and Agriculture, said this was not done, because while the orchard may be safe after 48 hours, in a week or so, a poisonous breakdown product makes the orchard hazardous again. "The U.C. Davis people came out with data that at 48 hours there was not significant

cholinesterase depression, but our position is that if you wait another week, you'll be up to your eyebrows in trouble," says Maddy, adding, "to my knowledge, the University didn't go back and study what happens in a week."

Chemical manufacturer Rhodia, Inc., approached U.C. public health scientist Robert Spear about a study on the safety of its product Zolone. "What they wanted was to get the re-entry time down from 21 days to seven, for some market advantage I'm not clear on," says Spear. He proposed a methodology, which was revised by the chemical company. While the company's influence was balanced by the input of state health officials, its grant did determine which product was studied. Rhodia gave \$74,000 to support the study. Spear says he decided to accept the grant and undertake the project because it would allow him to extend his methods to a new pesticide and a new crop.(28) As a result of the study, the state shortened the reentry interval on Zolone to 14 days.

Several U.C. scientists have been active in opposing the ban on the pesticide DBCP, a soil fumigant used to kill nematodes, microscopic worms which feed on crop roots. "We're unhappy with the loss of DBCP because at present there is no suitable replacement," says Winfield Hart, a nematologist with the University of California at Davis. He estimates that the ban may cause the loss of \$1 billion worth of fruit trees and grapevines. Both Hart and Armand Maggenti, another U.C. scientist who opposed the ban, have received grants from DBCP manufacturers or formulators.

The first suspicion that DBCP was harming human health came from workers who mixed and canned the pesticide at the Occidental Chemical Company plant in Lathrop, California. They wondered why so many men working in the plant's pesticide division had not fathered children. "It was a theory among the guys for at least four or five years," says Ted Bricker. A medical check showed Bricker's sperm count to be down, and he encouraged his co-workers to get themselves checked as well.

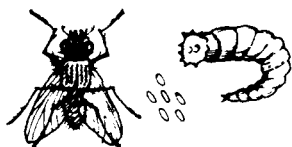
Though the state Dept. of Health and two University health scientists had been notified of the workers' concerns, it was a pair of filmmakers making a documentary on dangerous jobs who put up the \$100 it took to have a local medical clinic run the first fertility checks. Fourteen of the Lathrop workers were found to be sterile; 34 had reduced fertility.(29) DBCP workers in Arkansas and Alabama were also discovered to be sterile. One man developed testicular cancer.

Trials to prove that DBCP can be safely used to kill nematodes in orchard soils were conducted by U.C. farm advisor Doug Johnson. He was assisted by a representative of Amvac Chemical Corp., a DBCP supplier. During the trial, they handled DBCP during loading and unloading without protective clothing, gloves, or

respirators, and spilled some chemical twice. Johnson picked up a handful of dirt from one of the spills and sniffed it to see if it contained DBCP, which it did. State health inspectors observed the trial and criticized "the cavalier attitude and utter disdain for minimizing exposure to a known carcinogen."

Johnson told a *Los Angeles Times* reporter that he and the Amvac representative were "only doing what we've done for 20 years. We don't feel the material is hazardous." (30) In the last three years Johnson received \$29,750 in gifts from pesticide companies, including DBCP manufacturer Dow Chemical Co. "Chemical company mini-grants have allowed us, and me in particular, to acquire equipment that we normally wouldn't have been able to acquire," he says. Johnson recently resigned from the University to accept a job with a pesticide company.

In the last two years DBCP has become nothing less than a public health disaster. The film about the Occidental workers was named "The Song of the Canary," because as the canary warns the coal miner of dangerous air, the chemical worker is testing the safety of toxic chemicals for society. It was a prophetic title. High levels of DBCP residues were found in food. California health officials discovered that 155,000 people had been drinking water contaminated by hazardous levels of the pesticide, and ordered more than 40 municipal wells shut down. Lois Rossi, a biostatistician at the EPA, calculates that 10 ppb (parts per billion) of DBCP consumed in drinking water over a lifetime would cause 2,000 new cases of cancer per million population. (31)



In October of 1977 the state Department of Industrial Relations held hearings to investigate why such a potent poison had been overlooked and allowed into the workplace. (32) Among the witnesses was Dr. Charles Hine, who did research showing DBCP damages the testicles of experimental rats in his lab at the U.C. School of Medicine in San Francisco. Although he was employed by the University, and was working in its laboratory, said Hine, his research was supported by a grant from the Shell Chemical Corporation, and was reported on a confidential basis to Shell. (33)

Hine recommended to Shell that exposure to 1 ppm (part per million) would be a "no-effect" level for chemical workers, though he had no experimental data to prove it. He suggested further studies to the vice-president of Shell's Agricultural Chemical Division, but dropped the subject when the Shell executive said they would not be necessary. "I think we should have gone to a no-effect level, and I admit the error in this thing," he

testified. He agreed with hearing officer Don Vial's assessment that his research priorities were set by a "market place concept," that they are a matter of "who is going to come up with the money to do what you've considered objective research."

Hine was also asked about his financial ties to Shell. Since he joined the University faculty in 1947, Shell contributed approximately \$400,000 to his University research projects. Also since 1947, Hine has been receiving consulting fees from Shell. His private San Francisco laboratory has a contract to supply health data to the Agricultural Chemical Division of Shell.

Charles Hine was not the only U.C. scientist to ignore the hazards of DBCP. Chemists, nematologists, toxicologists and occupational health specialists, more than a dozen scientists in all, ran studies on the compound. Their research showed that it could be applied to the soil to kill pest nematodes, that it was relatively safe, and that little residue appeared in treated crops. Though the scientists were on the public payroll, their research was supported by 30 Shell grants worth \$47,800. Most of these funds were used in research projects to demonstrate the usefulness of Shell products, including its brand of DBCP, Nemagon.

"Facts developed are to be used in support of label registration and the development of sound recommendations, where justified," wrote Shell executive W.E. McCauley in a letter that accompanied one of the gifts. (34) "More specifically, we are interested in the development of data to support the use of Nemagon Soil Fumigant," said his letter, which added that the actual activities "should be discussed in greater detail with our local representative."

Bert Lear, a nematologist at the Davis campus, reported to the University administration in 1965 that "Studies in greenhouse and laboratory showed that tomato seedlings absorb DBCP through the roots and translocate it upwards." (35) The result was never published, Lear says today, because "That wasn't our purpose. We were just testing DBCP movement in soil." Unaware of the studies, the Food and Drug Administration incorrectly assumed that since DBCP is applied to the soil and not the plant, then no residues would appear on produce.

Though their research showed DBCP is highly soluble in water (36) and that it has a low affinity for soil, (37) Lear and Doug Johnson, a graduate student who helped him with his research, did not test to see how deeply the chemical would leach. "We only checked what happened to DBCP after one irrigation," says Johnson. It was a tremendous oversight. After 20 years of use, DBCP has evidently leached down hundreds of feet to contaminate ground water supplies.

While most University research was focused on testing of chemicals to control nematodes, at least one scientist is studying non-chemical alternatives. "It has

been long believed that decaying vegetable matter, manure, and similar soil amendments can restrict some nematode populations in the soil," reported U.C. Riverside nematologist Ron Mankau. "Such materials may favor the development of fungi and other organisms that attack nematodes."(38) Last year Mankau and two other Riverside nematologists reported success in cultivating a fungus which can parasitize the eggs of the root knot nematode. They used it to reduce nematode populations in peach orchards.(39)

Though most farm groups oppose the DBCP ban, one grower wrote the Dept. of Food and Agriculture urging it to keep the ban. He claimed that there would be no nematode problem if farmers used cover crops and manure to build up organic matter in the soil.

In response to the discovery of DBCP induced sterility of chemical workers, the California legislature appropriated \$2 million to establish an Occupational Health Center at the University of California. The goal of the center is to train occupational health scientists and improve job safety in California.

Quite ironically, the man who has been criticized as part of the problem has been put in charge of the reform. The University has named Dr. Charles Hine as co-director of the residency program of the new center, where he will supervise the training of physicians.

"We oppose Hine's appointment not just because of this involvement in suppressing his DBCP research, but also because he has done studies minimizing the hazards of working in the lead industry," says Ellen Shaffer, President of the U.C. Medical Center Employees Union (AFSCME). Her local has joined with environmental groups and locals of the Teamsters, longshoremen's and chemical workers' unions in forming the Coalition for a Responsible Occupational Health Center. "To meet the needs of working people, the center must have a component for direct worker education, and an advisory board with firm labor support," she says.

IV.

A critical question for the future success of controlling agricultural pests in California, is whether University scientists will act independently of the marketing concerns of the chemical industry. As the system now operates, pesticide manufacturers influence what pest control strategies get studied. Their gifts go to those professors who are developing uses for specific pesticide products.

In order to get a more balanced research effort, attorney Ralph Lightstone of California Rural Legal Assistance suggests that a pesticide research fund be created. "The state could increase the tax on pesticides, and just take the money the industry is already willing to give," says Lightstone. The advantage of such a system, he points out, would be in cutting the strings tied to

chemical company gifts. "The funds could be allocated according to the academic excellence of the scientists, and not by the marketing priorities of pesticide manufacturers," he says.

Reform minded faculty like U.C. Berkeley physicist Charles Schwartz have asked the Fair Political Practices Commission (FPPC) to adopt a conflict of interest code that would require faculty to disclose consulting arrangements and gifts from private industry. The Commission enforces California's political reform act, a post-Watergate ballot initiative that requires government decision makers to disclose their income and investments. It also makes it illegal for a government official to influence a decision when personal economic interests are at stake, and sets penalties for officials who use their office for financial gain.

The FPPC has decided, however, that the University conflict of interest code need not apply to professors. The reason for this exemption was given by chairman Daniel Lowenstein, who said, "The basic concern is academic freedom. There is a very strong concern built into the state Constitution that those who teach and do research should be free from outside control and outside supervision of those acts."

The irony of the FPPC decision is that those closest to the pest control controversy claim that outside influences are already at work. As Robert van den Bosch said, "I believe that the agri-chemical industry is taking advantage of its carefully nurtured ties with people in the University to promote its own version and self-definition of Integrated Pest Management, to the detriment of the sound pest control system which many of us have been striving so long to develop."(40)□

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news notes

JOBS WITH PEACE

The guns versus butter question is being taken to the electorate in 1980. Campaigns to put the "Jobs with Peace" initiative on the November 1980 ballot have started in many cities...Boston, Detroit, Oakland, Rock Island, IL., Sacramento, Hayward, Flint and Berkeley.

The Jobs with Peace Initiative first passed in San Francisco, November 7, 1978, with an overwhelming victory, 107,000 votes in favor and 69,000 votes against. A declaration of city policy, it stated: "The people of the city and county of San Francisco demand that the Federal government cease spending our tax money for wasteful military purposes and instead use it to provide jobs and services that our people so desperately need, thereby creating jobs with peace by cutting the military budget."

In April 1979, an initiative modeled after this one passed in Madison Wisconsin by 65 percent, an even larger margin.

The proposed military budget for FY 1981 — \$158.7 billion — is \$48 billion more than the official estimate for the total cost of the Vietnam War (\$110 billion). As current Pentagon plans call for spending more than a trillion dollars for military purposes between 1981 and 1985, the idea of offering the electorate the chance to discuss, debate, and vote on what the Federal government's priorities should be, is catching on.

Intending to show that an alternative to the Jarvis-Gann style "tax revolt" is not another tax cut, but rather, greater public participation in decisions on the use of tax monies, Oakland's Jobs with Peace Initiative has been dubbed a "taxpayer's initiative." This initiative has already received widespread endorsements, including those of Congressmembers Pete Stark and Ron Dellums.

The Massachusetts Jobs with Peace Initiative target four areas of social programs desperately in need of greater federal funding. As a public policy statement, it says: "Shall the Senator from this district be instructed to vote for

legislation calling on the Federal government to cease its inflationary policy of wasteful and unnecessary spending on new military programs, and instead to use our tax dollars for civilian needs such as construction of energy efficient housing, mass transit, quality public education, and improved health care, thereby creating jobs with peace?" In setting a trend towards public determination of Federal priorities (war or peace), the Jobs with Peace initiative paves the way for ongoing voter scrutiny over the specific type and quality of federal job-creation.

Rock Island is the home of the country's largest arsenal. There the Jobs with Peace campaign should draw considerable debate when the impact of increased military spending is examined in the light of how it will affect the community, jobs and services, inflation, and the world as a whole.

In all, people and organizations in almost 50 cities, from Anchorage to Tallahassee, have responded to the outreach efforts of the San Francisco Committee to Implement the Jobs with Peace Initiative. Composed of people who were active in the 1978 Jobs with Peace campaign, the committee has been actively encouraging people and organizations throughout the country to consider starting local campaigns for the November ballot. They have been assisted in their efforts by the Coalition for a New Foreign Military Policy, Mid-Peninsula Conversion Project, San Francisco Trade Unions (Retail Clerks #1100, Automotive Machinists #1305, ILWU), and many others. The committee will provide packets with information on the Jobs with Peace Initiative: ballot procedures, petition format, details of the San Francisco campaign, monthly updates on current campaigns etc. Write to: Committee to Implement the Jobs with Peace Initiative, 2990 22nd St., San Francisco, CA 94110.

The Boston Chapter of Science for the People is one of the leading groups in the Massachusetts initiative. They encourage other SftP chapters and members to participate in local initiatives. For further information on what the Boston

Chapter is doing and how Science for the People members can get involved, contact: Science for the People, 897 Main St., Cambridge, MA, (617) 547-0370.

MINERS GROUP OPPOSES URANIUM MINING

United Steelworkers Local 7044, which represents some 1,700 miners at Homestake Gold Mine in Lead, S.D., the largest gold mine on the continent, has recently become the scene of a controversy about proposed uranium mining. Raising the controversy is Miners for Safe Energy, a group of miners and their families and friends which began to organize in October to oppose uranium mining in the scenic Lead-Black Hills area of western South Dakota. They say uranium mining is dangerous to workers, will destroy ranching livelihoods and recreation in the Black Hills, and as part of the capital-intensive nuclear fuel cycle, will ultimately mean fewer jobs for everybody.

"We look at other areas where uranium development has happened and see workers with lung cancer, short-lived boomtowns, and devastated natural resources. We don't want this to happen to the Black Hills," says David Johnson, Homestake contract miner and member of Miners for Safe Energy.

The United Steelworkers International Union officially favors nuclear power and uranium mining. Knowing this, members of Miners for Safe Energy felt some uncertainty in approaching their local. "Considering our International's position on nuclear power, we expected opposition to our position on uranium mining," said Johnson. So far, the local allowed members of the group to speak on uranium mining issues at monthly meetings in April; their presentations were well-received, despite resistance from Local President Dallas Tinnell and others. Tinnell has announced that, in response to a Miners for Safe Energy request, he has appointed an energy committee within the local; he has also said, however, that the committee will up-

hold the International's stand in favor of nuclear development and uranium mining.

Miners for Safe Energy is continuing to organize mine workers through public speaking engagements, meetings at the homes of interested people, sponsoring events such as a nuclear victims tour on April 4 and an evening with local legislators to discuss energy issues April 26, and other public forums. Miners canvassed some 1,000 homes in Lead, gathering names for a petition that put a referendum on the November 1980 ballot. If the referendum passes, South Dakotans will have the chance to vote for or against any nuclear development in the state. In addition, the group has begun distributing its own newsletter, Northern Hills *Safe Energy Times*, and is raffling a solar collector which members built to demonstrate the feasibility of appropriate technologies.

Miners for Safe Energy's stand is especially significant because of the intensive exploration for uranium now going on in the area by Union Carbide, Exxon, Westinghouse, Kerr-McGee, and other large corporations. The Homestake workers represent a trained body of underground miners, and are a prime labor pool for uranium work. Uranium miners in nearby Wyoming are paid \$3-10 an hour more than gold miners at Homestake, so it is

likely that — despite the health hazards to workers — miners could easily be lured into the higher paying uranium industry.

The group is now trying to convince other area locals to take a stand on nuclear development in South Dakota. They are working with Washington, D.C.-based Environmentalists for Full Employment, and need input from other locals and rank and file groups working against nuclear power and for safe energy development. To receive their newsletter (\$5.00) or to contribute advice, funds, or other support, please write: Miners for Safe Energy, P.O. Box 247, Lead, S.D. 57754.

—*excerpted from an article by Evelyn Lifsey and Talli Nauman in the April 24, 1980 Labor Notes (pub. by Labor Education & Research Project, P.O. Box 20001, Detroit, MI 48220)*

CIVIL RIGHTS AND THE METHADONE PATIENT

An administrative ruling which significantly enhances the civil rights of recovering narcotics addicts in New York State was recently handed down by the New York State Division of Human Rights. The decision, *Perez v. State of New York*, is an outgrowth of a discrimination complaint filed by a forty-four year old Hispanic man enrolled in a

New York City methadone treatment center. The Complainant, Domingo Perez, applied for employment with the New York State Department of Civil Service as an elevator operator and building guard. He was informed that he was medically disqualified for both positions because of his methadone dependence.

Perez filed a complaint with the New York State Division of Human Rights alleging that the Department had violated the Human Rights Law by discriminating against him on the basis of (1) disability and (2) race, color, and national origin. Perez's complaint was initially dismissed without investigation on the theory that (1) the division lacked jurisdiction since drug dependence is a "social problem" and not a disability and (2) it would be inappropriate in light of that determination to reach the issue of discriminatory impact. The Human Rights Appeal Board affirmed the dismissal of the complaint without comment. On appeal, the New York State Supreme Court annulled the dismissal of the complaint and remanded the matter to the Division for a review of its drug addiction policy.

On November 21, 1979 the Division's General Counsel rendered an instructional opinion which states that methadone dependency should be considered a medical condition and therefore a disability as defined in Section 292.21 of the Human Rights Law. The opinion further instructs Division staff to determine whether methadone dependency prevents Perez from performing in a "reasonable manner" the jobs he had applied for. The opinion brings New York State in line with guidelines promulgated by the Department of Health, Education and Welfare, interpreting the Federal Rehabilitation Act of 1973. These guidelines, issued on May 4, 1977, include drug addiction in the definition of a "handicapped person."

The *Perez* decision affects thousands of ex-drug abusers in methadone programs throughout New York State. The State Division of Human Rights has acknowledged that blanket exclusion of these persons from employment — the most essential element in rehabilitation — is highly arbitrary and capricious, and ultimately illegal.

—*submitted by Eric Matusewitch,
Equal Employment
Opportunities Specialist,
New York City Dept. of Health*

LETTERS

(continued from page 2)

tests. I was willing to submit to additional radiation in the event of a positive reaction. Title 22 of the California Administrators Public Health Code requires one or the other procedure as a condition of employment, with X-rays for positive reactions. (The agency requires both procedures.)

As a result of my indignation, I filed a complaint with the Labor Commission in San Francisco on violation of Labor Codes 6310 and 6311, which indicate that if an employee fears that a condition of work may endanger her/his health or pose a risk to health — and the fears are justified — the employee is entitled to a hearing. I was concerned about the accumulation of unnecessary low level radiation exposure and my agency refused to allay my fears or even consider them. In short time, I obtained a hearing. Although I was confronted by

a lawyer, two administrators, the director, the medical director and a member of the nursing staff, I had documentation from Congressional hearings, the Federal Register — which now suggests that all mass screening for T.B. and annual exams eliminate or reduce X-ray exposure — and a letter from Physicians for Social Responsibility. I had statements from physicists in the OSHA office indicating that the state endorses the federal guidelines. To my surprise and elation, the hearing was decided in my favor — with the outcome that I was to be reinstated to my former position with full reimbursement of lost wages and benefits.

At the present time, the agency has refused to comply with the Labor Commissioner's directives, and I am awaiting further proceedings. I believe it is useful to let other people know about this experience in the hopes that it may provide impetus to carrying out similar action.

*Marge Harburg
San Francisco*

FOOD PRODUCTION AND POLITICS

The Growth of Hunger: A New Politics of Agriculture, Rene Dument and Nicholas Cohen, Marion Boyars, Inc. (99 Main Street; Salem, New Hampshire 03079), 1980, \$7.95 (paperback), 229 pp. This work pinpoints the inequalities in political and economic power as being at the heart of the crisis, and proposes practical and radical strategies for the future.

MEDICINE AND POLITICS

The Cultural Crisis of Modern Medicine, John Ehrenreich, Ed., Monthly Review Press (62 W. 14th St.; New York, NY 10011), 1978, \$15.00 (hardback), 300 pp. The essays argue that the health care systems characteristic of advanced capitalist societies are agencies of domination as well as instruments of healing: that they perpetuate racism, sexism, and the entire fabric of capitalist class relations.

A Ugandan: Defiant and Triumphant, Benjamin N.H. Kagwa, M.D., Exposition Press, Inc. (900 S. Oyster Bay Rd.; Hicksville, NY 11801), 1978, \$10.00 (hardback), 252 pp. An autobiographical account of the making of a medical doctor.

Getting Doctored: Critical Reflections on Becoming a Physician, Martin Shapiro, M.D., Between the Lines (97 Victoria Street North; Kitchener, Ontario, Canada), 1978, \$6.95 (paperback), \$13.95 (hardback), 219 pp. A telling critique of medical education and its effects.

Caring for Ourselves: An Alternative Structure for Health Care, Nancy Kleiber and Linda Light, Vancouver Women's Health Collective (1501 West Broadway; Vancouver, B.C., Canada V6J 1W6), 1978, 184 pp. This report is primarily a case study of the Vancouver Women's Health Collective, a non-hierarchically structured feminist organization which provides health education and preventive care to women.

Traditional Healing: New Science or New Colonialism? Subtitled: Essays in Critique of Medical Anthropology, Philip Singer, Ed., Conch Magazine Ltd. (102 Normal Avenue; Buffalo, NY 14213), \$10.00 (paperback), \$17.50 (hardback), 1977, 260 pp. "What is at issue is the new Colonialism of the independent countries which makes access to the progress of the urban rulers equally impossible for the masses and supports the traditions of the past as if they were things that are true and good, but only for the masses, not the rulers. For the hegemony of the white colonialists has been supplanted by the hegemony of the black rulers.

"Traditionalism is as much a 'force' and a 'social process' as is colonialism. Because it is 'traditional' does not make it 'better' or anti-colonial."

Female Complaints: Lydia Pinkham and the Business of Women's Medicine, Sarah Stage, W.W. Norton & Company, 1979, \$10.00, 304 pp. "Stage deftly traces the career of the patent medicine from its origins in the Lynn, Massachusetts kitchen of Lydia Pinkham to the sale of the family business to a major corporate concern in 1968."

Profile of the Negro in American Dentistry, Foster Kidd, D.D.S., Ed., Howard University Press (2900 Van Ness St., N.W., Washington, DC 20008), 1979, \$9.95 (hardback), 224 pp. "It is both an intriguing study of the rich history of blacks in the dental profession and a practical guide for the student interested in pursuing a career in dentistry. Concisely written, the book traces the innovations in dentistry and relates the invaluable role blacks have played in them, including the development of the full gold crown."

Rockefeller Medicine Men: Medicine and Capitalism in America, E. Richard Brown, University of California Press (2223 Fulton St.; Berkeley, CA 94720), 1979, \$12.95 (hardback), 295 pp. After tracing the historical ties between American medicine and corporate capitalism, Brown concludes that the health needs of the population will not be met until

the market system of medicine and corporate class control are eliminated.

CANCER/OCCUPATIONAL HEALTH RESOURCES

The Ontario Public Interest Group recently published a pamphlet on asbestos hazards entitled **Magic and Deadly Dust**, which has been widely distributed to trade unionists. It contains much practical information on specific risks as well as on strategies to use in the workplace. It is available for \$1.00 (special deals for bulk orders) from Windsor Occupational Safety and Health Council, c/o Cody Hall, University of Windsor, Windsor, Ontario, Canada N9B 3P4.

Also available from the **Windsor Occupational Safety and Health Council** (see above listing) is a 3/4-inch videotape of a 30-minute news special broadcast by the local TV station (CBET) focusing on occupational health struggles in Windsor. The issues covered include vinyl and poly-vinyl chloride exposure in the plastics industry, asbestos hazards at Bendix, and diesel emissions at a rock salt mine. WOSH is willing to lend the videotape to groups or to sell it at cost (approximately \$40 Canadian).

The Carcinogen Information Program (CIP) is a project of the Center for the Biology of Natural Systems. Its purpose is to educate citizens, government and industry about the occurrence, health impact and regulation of carcinogens. CIP puts out a bulletin each month which describes a cancer causing substance, its health effects and what one can do about preventing exposure to it. CIP wants to hear people's questions about carcinogens in food, water, air, workplace and consumer products. If you wish to receive CIP reports and bulletins or have specific questions send several long, self-addressed, stamped envelopes to: Carcinogen Information Program, Center for the Biology of Natural Systems, Washington University, St. Louis, MO 63130.

CORRECTION

The labels "IONIZING" and "NONIONIZING" on the graph of the electromagnetic spectrum on p.34 of the March/April 1980 issue should have been reversed.

CHAPTERS AND CONTACTS

Science for the People is an organization of people involved or interested in science and technology-related issues, whose activities are directed at: 1) exposing the class control of science and technology, 2) organizing campaigns which criticize, challenge and propose alternatives to the present uses of science and technology, and 3) developing a political strategy by which people in the technical strata can ally with other progressive forces in society. SftP opposes the ideologies of sexism, racism, elitism and their practice, and holds an anti-imperialist world-view. Membership in SftP is defined as subscribing to the magazine and/or actively participating in local SftP activities.

NATIONAL OFFICE: Science for the People, 897 Main St., Cambridge, MA 02139. (617) 547-0370.

MIDWEST OFFICE: 4104 Michigan Union, Ann Arbor, MI, 48109. (313) 971-1165.

ARIZONA: Sedley Josserand, 2925 E. Adams, Tucson, AZ 85716. (602) 323-0792.

ARKANSAS: Dotty Oliver, P.O. Box 2641, Little Rock, AR 72203.

CALIFORNIA: **East Bay Chapter:** Science for the People, P.O. Box 4161, Berkeley, CA 94704. **San Francisco Chapter:** Matt Larsen, P.O. Box 34-161, San Francisco, CA 94134. (415) 824-4337.

Allan Stewart-Oaten, Biology Dept., UCSB, Santa Barbara, CA 93110. (805) 961-3696. Dave Offen, 262 O'Connor St., Menlo Park, CA 94025. (415) 323-5452. **Irvine Chapter:** SftP, P.O. Box 4792, Irvine, CA 92716.

COLORADO: **Greeley Chapter:** Michael Higgins, Dept. of Anthropology, U. Northern Colorado, Greeley, CO 80639. (303) 351-2021. Ted Scheffler, 1217 26th Ave., Apt. 103, Greeley, CO 80631. (303) 351-0835.

CONNECTICUT: David Adams, Psych. Lab., Wesleyan Univ., Middletown, CT 06457. (203) 347-9411x286.

DISTRICT OF COLUMBIA: Walda Katz Fishman, 6617 Millwood Rd., Bethesda, MD 22034 (301) 320-4034.

FLORIDA: Gainesville Research Collective, 630 NW 34th Place, Gainesville, FL 32601. **Tallahassee Chapter:** c/o Progressive Technology, P.O. Box 20049, Tallahassee, FL 32304.

ILLINOIS: **Chicago Chapter:** c/o Ivan Handler, 2531 N Washtenaw, Chicago, IL 60647. (312) 342-6975. **Urbana-Champaign Chapter:** 284 Illini Union, Urbana, IL 61801 (217) 333-7076.

IOWA: Paul C. Nelson, 604 Hodge, Ames, IA 50010. (515) 232-2527.

MARYLAND: **Baltimore Chapter:** c/o Alternative Press Center, 2958 Greenmount Ave. Baltimore, MD 21218. Frank Teuton, 7923 24th Ave., Adelphi, MD 20783.

MASSACHUSETTS: **Amherst Chapter:** Marvin Kalkstein, University Without Walls, Wysocki House, University of Massa-

chusetts, Amherst, MA 01002. **Boston Chapter:** Science for the People, 897 Main St., Cambridge, MA 02139. (617) 547-0370.

MICHIGAN: **Ann Arbor Chapter:** 4104 Michigan Union, Ann Arbor, MI 48109. (313) 971-1165. **Lansing Chapter:** Eileen Van Tassell, 2901 Lovejoy Rd., Perry, MI 48872. (517) 625-7656.

MINNESOTA: Mickey Lauria, 1410 E. 22nd St., Minneapolis, MN 55404. (612) 871-8874. (612) 323-4581.

MISSOURI: **St Louis Chapter:** Science for the People, Box 1126, Washington University, St. Louis, MO 63130. (314) 533-1936.

NEW HAMPSHIRE: Val Dusek, Box 133, Durham, NH 03824. (603) 868-5153.

NEW YORK: **New York City Chapter:** c/o Red Schiller, 233 E. 21st St., Apt. 18, New York, NY 10010. (212) 254-1365. **Stony Brook Chapter:** P.O. Box 435, E. Setauket, NY 11733. (516) 246-5053.

NORTH CAROLINA: Marc Miller, 51 Davie Circle, Chapel Hill, NC 27514. (919) 929-9332, 688-8167.

OHIO: Jenny Thie, 2147 Fulton Ave., Cincinnati, OH 45206. (513) 281-6149. Nici Ihnacik, 116 Central Ave., Athens, OH 45701.

OREGON: **Portland Chapter:** c/o Jacqueline Germain, 6916 NE Mallory St., Portland, OR 97211.

PENNSYLVANIA: Ruth Weinstein, 2116 Walnut St., Apt. 2R, Philadelphia, PA 19103. (215) 561-4323. Miriam Struck, Scott Schneider, 5646 Munhall Rd. #10, Pittsburgh, PA 15217. (412) 521-0678.

RHODE ISLAND: Carolyn Accola, 245 President Ave., Providence, RI 02906. (401) 272-6959.

TEXAS: **Austin Chapter:** c/o Ed Cervenka, 911 Blanco St., No. 104, Austin, TX 78703. (512) 477-3203. Ann M. Baker, 738 Garden Acres, Bryan, TX 77801. (713) 846-3824.

VERMONT: Steve Cavrak, Academic Computing Center, University of Vermont, Burlington, VT 05405. (802) 658-2387. 656-3190.

WASHINGTON: Phil Bereano, 316 Guggenheim, FS-15, Univ. of Washington, Seattle, WA 98195. (206) 543-9037.

WISCONSIN: Rick Cote, 1525 Linden Drive, Madison, WI 53706. (608) 262-4581. (608) 257-2747.

CHAPTERS and CONTACTS OUTSIDE U.S.

AUSTRALIA: Lesley Rogers, Pharmacology Dept., Monash University, Clayton, Victoria 3168, Australia. Janna Thompson, Philosophy Dept., La Trobe University, Bundoora Victoria, Australia.

BELGIUM: Gerard Valencuc, Centre Galilee, B.P. Galilee 160, B-1348, Louvain-la-Neuve, Belgium. (10) 10-41-49-97.

CANADA: **Manitoba:** Charles Polayn, c/o Argyle High, 30 Argyle St. Winnipeg, Manitoba, Canada. Ontario: Science for the

People, P.O. Box 25, Station "A", Scarborough, Ontario, Canada M1K 5B9. **Quebec:** Doug Boucher, Dept. of Biology, McGill University, Montreal, Quebec. (514) 392-5906. Bob Cedergren, Dept. of Biochemistry, Univ. of Montreal, Montreal 101, Quebec, Canada.

DENMARK: Susse Georg & Jorgen Bansler, Stigardsvej 2, DK-2000, Copenhagen, Denmark 01-629945.

ENGLAND: Society for Social Responsibility in Science, 9 Poland St., London, W1V3DG, England. 01-437-2728.

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JAPAN: Gendai Gijutsu-Shi Kenkyu-Kai, 2-26 Kand-Jinbo Cho, Chiyoda-Ku, Tokyo 101, Japan.

MEXICO: Salvador Jura-Guerrero, Mariano Jimenez, 831 Col. Nueva Chapultepec, Morelia, Michoacan, Mexico.

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