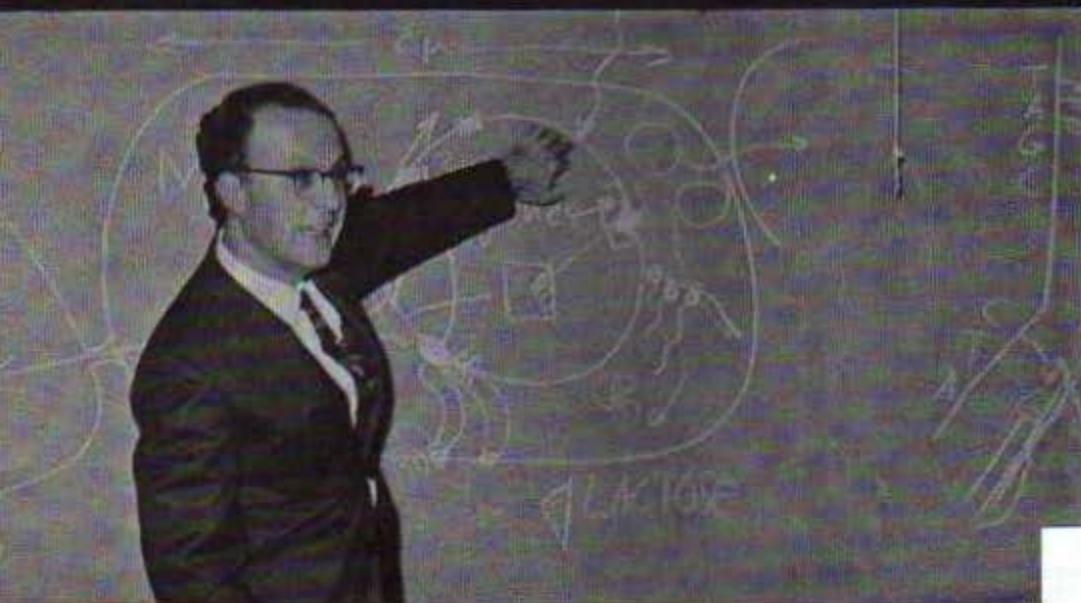


SCIENCE FOR THE PEOPLE

Sept.-Oct. 1977

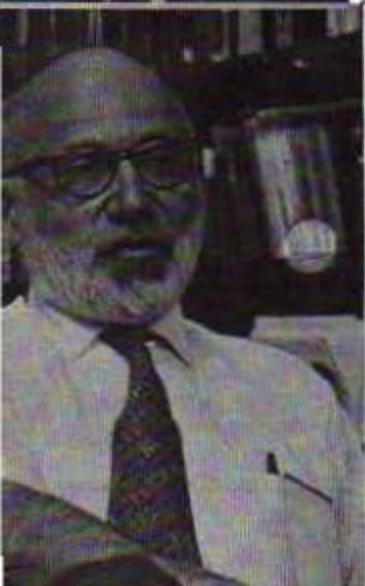
Vol. 9 No. 5.

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DEALING WITH EXPERTS:

THE GREAT DNA DEBATE



USING OSHA
CARTER'S ENERGY PLAN
CONTROLLING HYPERACTIVE KIDS

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.

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A chapter consists of three or more people meeting regularly. If you want to help start a chapter or be a contact person for your area, please contact science for the People, 897 Main St., Cambridge, MA 02139. Tel: (617) 547-0370.

COVER: Some experts to deal with, clockwise from top left: *Donald A. Glaser*, prof. of physics and mol. biol., U.C. Berkeley; Nobel laureate in physics; Chm. of Board of Scientific Advisors, Cetus Corporation; working on recombinant DNA technology. *Jonathan King*, prof. of biology, MIT, long active in Science for the People, especially on genetics issue. *Erwin Chargoff*, prof. emeritus of biochem., Columbia U.; early pioneer in nucleic acid chemistry, and astute critic of recomb. DNA research. *Matthew Meselson*, prof. of biology, Harvard U.; active proponent of recomb. DNA research. *James Watson*, director, Cold Spring Harbor Lab; co-discoverer of DNA structure; recently characterized critics of recomb. DNA research as "kooks, shits, and incompetents." *Joshua Lederberg*, prof. of genetics, Stanford U.; pioneer in bacterial genetics; scientific advisor to Cetus corporation. *Wallace Rowe*, virologist; chief, Laboratory of Viral Diseases, NIH; member NIH Adv. Committee on Recomb. DNA. center: *Maxine Singer*, head of nucleic acid enzymology section, NIH; co-organizer of 1973 Gordon Conf. and 1975 Asilomar Conf. where recomb. DNA hazards were first discussed; member of NIH Adv. Committee on Recomb. DNA.

Science for the People

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Cambridge, Mass. 02139

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about this issue

Even though new data on the formidable hazards and questionable efficiency of nuclear power plants continues to appear, the issue of nuclear power may at this point be more political than technical. Technical problems, such as waste disposal and the security of weapons-grade nuclear materials, may even be shown to be insoluble. Despite this, as Barry Commoner points out in his article, the Carter Administration seems determined to lock this country into a nuclear future and to block alternate paths of energy development. These efforts, carried out under a cloak of deceptive, high-sounding political rhetoric and technical jargon, have been largely effective in convincing the American public that its best interests are being served.

Yet, as Commoner points out, this push for nuclear expansion is being carried out mainly to perpetuate the present economic system. Developing the only other viable alternative, solar energy, would threaten the established power structure, by loosening the hold of giant corporations on the economy and our lives. People must find out and struggle for what's in their best interest — not only freedom from radioactive hazards but the freedom to participate in economic and production decisions, now largely in the hands of owners of capital.

People taking control of the decisions that affect their lives is what socialism is all about — the common ownership and social governance of the means of production. Fighting nuclear power and developing solar energy makes that goal more achievable.

Much has been said and written about recombinant DNA in the last few years. As with nuclear power, a strong temptation exists — especially among the technical community — to focus discussion on whether recombinant DNA is or is not dangerous from a narrowly technical point of view. Seeing the issue as primarily technical, many scientists desire to keep discussion of the dangers and decisions about continuing or halting the research within the scientific establishment. While there are technical issues involved, it seems clear that to expect scientists to forego pursuing a professionally profitable goal just because it is also potentially dangerous is analogous to expecting industries to voluntarily institute expensive pollution controls.

The real issue in the recombinant DNA controversy is not scientific, but political. Who decides what research gets done? In their article, Scott Thacher and Bob Park report on the development of a movement towards establishing social controls over recombinant DNA technology and, by implication, over scientific work which affects our lives.

In this issue Patty Bronson confronts a relatively new and formidable threat to health, namely, the use of drugs to control children in the classroom. The term MBD (minimal brain dysfunction) has been coined by doctors as a catch-all phrase encompassing a wide range of 'problematic' behaviors. It is argued that the presence of these behaviors in young children is symptomatic of an organic disorder. Children exhibiting such symptoms in the classroom may be diagnosed as suffering from MBD (or hyperactivity) and then perhaps treated clinically. In other words, if a child happens to exhibit "general awkwardness, . . . Poor printing, writing or drawing ability, . . . thumb-sucking, nail-biting, head-banging, . . . (or) possibly negative and aggressive (attitudes) towards authority," then s/he runs the risk of being treated with strong, poorly understood, psychoactive drugs.

Whatever legitimate help drug therapy can offer some hyperactive children, it is certainly unwise to hastily drug unwitting kids when so little is known about the long-term effects of such a treatment strategy. The term MBD itself is so poorly defined that it really amounts to nothing more than a name serving to mask ignorance. No one can tell precisely why a child is behaving in some particular way, nor does anyone know whether or not it is somehow 'unhealthy'. There simply is no rigorous understanding of what hyperactivity is, and for that reason one ought to proceed all the more cautiously. Unfortunately, our doctors and school systems seem to be throwing caution to the winds. □

The Inter-University Committee to Stop Funding War & Militarism

We are a network of people, mostly on universities who study arms-race issues and do writing among which are "Understanding Counterforce: Pentagon Terrorism" (1975) and "After Vietnam: Resurgent Militarism" (1976, reprinted in the Jan-Feb. 1977 issues of *Social Policy*).

We are organized in two main clusters, Berkeley and Philadelphia, with several hundred other correspondents. Current projects: writing about politics, economics and technology of current arms decisions. Working with Mobilization for Survival (whose goals are: elimination of nuclear weapons, ban of nuclear power, halting the arms race, funding human needs) on the November teach-ins.

We are looking for new members. If interested write: IUC, 2302 Ellsworth, Berkeley, CA 94704.

letters

LEFTIST INSENSITIVITY

Dear Friends at SftP:

Since I have frequently forwarded positive criticism to you, pass magazine articles around to friends, use the magazine in classes, and the like, I feel awkward about writing this letter which is intended to express a strong negative criticism. But I feel also that it is appropriate for me to do so.

The article on "Repression of Scientists in Argentina" which was written by the Editorial Collective covers the situation in that country well in all respects except one. The glaring omission is discussion of the increased anti-Semitism which is behind much of the repression you detail. Although there is mention of the government's desire to uphold "Christian" values, one not familiar with events in Argentina might take that to mean solely a campaign against Marxists, humanists, and other secular people. But, in fact, many of the victims are Jewish, and the Jewish community in Argentina (probably the largest in Latin America) is very fearful.

The Left is properly sensitive to ethnic discrimination of all kinds, except usually anti-Semitism. Jewish people, and Jewish Leftists in particular, no longer should allow this to go unchallenged. I cannot believe that a similar article in the magazine which covered repression in a particular country would fail to note if it were being applied along ethnic (as well as economic or ideological) lines. If American Leftists wonder why the Jewish communities in the US have moved rightward so rapidly and so fast, I would suggest that in part the reason is due to a profound feeling that the rest of the world considers us expendable (of course, a class analysis of trends among Jews in the past 20 years or so would tell a great deal too — but not all, by any means).

I expect Science for the People to be as strongly against anti-Semitism as it is

against oppression directed toward Blacks, Mexican-Americans, Puerto Ricans, Native Americans, and other ethnic groups, as well as women.

In the struggle,
Phil Bereano
Seattle WA

The Editorial Committee replies:

The "glaring omission" in our article of anti-Semitic actions in Argentina was of course wholly unintentional. Given more time, our research could have been more comprehensive. As it was, we relied heavily on a few sources, both from Argentina and the left publications in this country, which made only passing mention of the anti-Semitic aspect of the situation. These passing remarks were among the material edited out of the final version of the article. This is not to excuse the omission, which is inexcusable, but to illustrate the validity of Bereano's criticism.

CBLA FIGHTS BROWN LUNG

Dear SftP:

I'd like to thank you for the article on Brown Lung in the May-June issue. As the article documents, there has been a conspiracy of silence concerning byssinosis. Knowledge of the disease and of the political/economic systems which keep it the South's leading occupational illness helps to fight that conspiracy.

I do want to make one basic point about the history of Brown Lung organizing. Author Michael Freemark points out that "the people of China are served by a health care system controlled by workers and consumers." Yet in discussing Brown Lung, he fails to even mention that a workers/consumers organization has led the fight for compensation and a safe workplace. The Carolina Brown Lung Association, which is composed of and controlled by disabled and retired textile workers, has been working for almost three years to

build grass roots organizations, which now exist in six different Carolina communities; to educate textile workers to the dangers of Brown Lung and other workplace hazards; and to fight for other changes which can lead to occupational safety and health in the American textile industry.

Among other things, CBLA organized and sponsored the Brown Lung screening clinics in which MCHR members participated. The work which the MCHR people did was extremely valuable. But since it is so rare that medical professionals have the chance to participate in health care programs at the request of and under the control of working people, I think it would have been worth pointing this out a little more clearly.

Readers who are interested in learning more about CBLA can write to the chapter listed below.

For compensation and a safe
and healthy workplace,
Charlotte Brady
Carolina Brown Lung Association
Roanoke Rapids Chapter
P.O. Box 1101
Roanoke Rapids, NC 27870

COLUMBIA NUKE

Dear SftP,

Robert Hedges' report on the campaign against Columbia University's nuclear reactor was disappointing to me in its lack of any analysis of the wide social and political reasons for opposing nuclear technology.

As reasons for opposing the reactor, Hedges mentions only catastrophic accidents and normal releases of radioactive materials. What could be mentioned are major problems generated by the nuclear industry — waste disposal, proliferation of nuclear weapons, terrorism — which lead one to question why Columbia should be studying nuclear technology rather than alternatives such as

Boycott J.P. STEVENS PRODUCTS



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(comic strip figures)
Tastemaker
Utica
Utica & Mohawk
Designer Labels:
Yves St. Laurent
Angelo Donghia

412

TOWELS
Fine Arts
Tastemaker
Utica

BLANKETS
Forstmann
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CARPETS
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Merryweather
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TABLE LINEN
Sintex

HOSIERY
Finesse
Hip-Lets
Spirit

DRAPERIES
J.P. Stevens

tor, but a very lengthy article would be required to cover them all thoroughly. I emphasized the points that affect most people, in a way that would be understood. We have attempted to keep the issue of a nuclear reactor in our midst alive for ten years. (It should be noted that there are something like 55 similar teaching-type reactors in the US.) While our sights may be low, we feel that it is a useful endeavor to keep a nuclear reactor out of NYC by the means which we have used. Although we have many supporters in the community — the student body, the faculty, and all our elected officials — our work is carried on by about eight people.

SEXISM, RACISM, CONT'D.

Dear SftP:

Continuing the debate about the relationship between feminism and socialism, I would like to reply to Ronnie Rom's response to my letter, in which I warned of the dangers of feminist separatism. Ronnie reiterated that the solutions to sexism and racism are not necessarily tied to socialism and denied that the economic class struggle is the "only overriding issue of our time."

Not only is the preceding semantically wrong, since there can, by definition, be only one "overriding" issue, but it smacks of establishment ideology, which prefers to deny any *basic* cause of anything (unless genetic). While it's true that cause and effect do intertwine hopelessly, still there *are* different gradations of causation, and it's good to try to get to the deeper ones. After all, how can we sing "Which side are you on?," or answer the question, without having an overriding struggle in mind?

To define it, let's ask what's oppressing most people the most, world-wide. Is it something being done to women as women, blacks as blacks, environmentalists as environmentalists, etc., or to a vastly larger group, i.e., the 90 to 95 percent of the capitalist world population who don't own anything productive and so must sell their labor, instead, in a declining market as prices rise. It is the latter oppression, a function of economic class, and this oppression is not illusory, rhetorical or a chimera of outdated 19th century Marxist dogma. It is as real as rising prices and receding jobs, the international runaway shop, starvation and torture all over the Third World, environmental disaster, worsen-

ing sexism and racism. It is the accumulated force, on a societal scale, of 500 years of capital accumulation in private hands. The issue of this oppression is basic to sexism and racism because, although these isms have been valuable justifiers of economic class division in the past, capitalism could conceivably (although not probably) do without them. Vigorous anti-racism and anti-sexism movements could succeed within capitalism and there would still remain the same vicious problems of today, except with more women and non-whites in the ruling class. The indispensable victim of capitalist oppression is the working class and no cause speaks for this large group, except the cause of socialist transformation.

The suspicion within the Women's Movement that there may be something deeper to sexism than the economic, does not remove feminists from the effects of capitalist dissolution or the need to respond to it. It's effects are so powerful that it defines us, just as it defined women's struggle in China and Vietnam, forcing it to the anti-imperialist side. The whole dynamic of capitalism at a time of economic crisis is to thwart a left response by every means possible, using every problem of capitalism, every liberal solution to such problems, every lie as to basic cause, to drive the people to the right. Are these effects not apparent in the Women's Movement? Ties are not longer drawn to other groups' (blacks, Third World people's) oppression, as in the 60's and early 70's, feminism becomes mysticism, therapy, women's credit unions and banks, there is an inward-turning toward exclusive cause and exclusive solution. The ruling class helps by turning liberal solutions, like Affirmative Action, against us, blaming women and blacks for the decreased opportunities of men and whites, which are in truth the direct result of the current capitalist economic contraction. When the same fate is seen befalling other progressive causes — environmentalism, for instance, has been turned into an enemy of the working class, on the jobs issue — then a trend of perversion is evident which can only be reversed by a forthright, radical approach, i.e., one that ties the separate problems of

LETTERS, *contd. on p. 39.*

energy conservation, decentralised wind and solar power, and changed institutional arrangements. Also important is the close link between training technologists for the civilian and military nuclear programmes. More fundamentally, a critique could be made of the social and political characteristics of a nuclear-based society, such as extreme centralisation of political control due to the need to protect massive investments and prevent breakdowns, excessive security measures to prevent terrorism, and a dependence on experts (such as nuclear technologists) and other elites to make decisions about a technology which the public cannot understand, much less control.

The nuclear issue is an important one for bringing out the political nature of science and technology precisely because of the ease with which technological and environmental issues can be linked with social, political, and institutional issues. The Ad Hoc Committee Against Columbia's Reactor is to be commended for its long struggle; but I would encourage it to broaden the terms of its opposition.

Brian Martin
Canberra, Australia

The author replies:

I agree with all the points that Mr. Martin makes. We have made these points in our long fight against the reac-

news notes

LOS ALAMOS ELITE:
VANGUARD FOR
NEUTRON BOMB

ANTI-NUKE STRUGGLE ESCALATES

In initiating the first mass occupation of an *operating* nuclear reactor in the US, members of Oregon's Trojan Decommissioning Alliance have escalated the anti-nuke struggle by challenging the continued operation of nuclear power plants.

It began Saturday, Aug. 6 — the anniversary of the Hiroshima bombing — with a rally in Portland. Action then shifted to the Trojan nuclear power plant, 40 miles northwest of the city. 600 people rallied that afternoon in front of the site and then nearly one hundred occupiers marched in from a staging area two miles away and took up positions directly in front of Trojan's access gates.

Occupiers, in the manner of New England's Clamshell Alliance, structured themselves into small affinity groups. The affinity groups had all undergone advance nonviolence training, a requirement for participation in the civil disobedience. State police held off arresting the occupiers, who were camped out in tents, until dawn on Monday. The 34 women and 48 men arrested presented a united front, insisting that none of them would leave custody until all were released together. National Lawyers Guild attorneys helped the occupiers get their way. The demonstrators hope to use the upcoming trials to put the issue of nuclear power on trial. To help, contact the Trojan Decommissioning Alliance, 215 SE 9th Ave., Portland, OR 97210. The weekend anniversary of the Hiroshima bombing was of course commemorated world-wide. Actions, demonstrations and arrests in the US included an occupation by the Abalone Alliance at a nearly finished reactor near San Luis Obispo, California, demonstrations by Clamshell at Seabrook, and others at the General Dynamics nuclear submarine construction yard in Groton, Conn., and the Millstone nuclear plant in Waterford, Conn.

—In *These Times*, Aug. 17, 1977

ENCOUNTER GROUPS

An example of a government contract currently out for bid in the government publication *Commerce Business Daily*:

Analysis of Small Group Encounter: survey, analyze and document worldwide operational experience, and data on the circumstances and outcomes of encounters between local law enforcement or other security forces and small groups of armed hostiles attempting to penetrate secured facilities or hijack protected road shipments . . . contact U.S. Nuclear Regulatory Commission, Washington, DC.

VA NURSE FRAME-UP

July 13th, two nurses were convicted of three charges of poisoning and one charge of conspiracy each in the investigation of 53 breathing failures at the Ann Arbor VA hospital in summer 1975. The FBI and prosecution spent many thousands of dollars and hours to achieve this conviction and yet could find no motive. (The women were acquitted of a murder charge and most of the other charges were dropped.) The evidence in the trial was scanty, incomplete, and often contradictory. Many people felt that just because these nurses had easy access to the patients and they were foreigners, they were an easy scapegoat for the prosecution to pin the case on.

Members of Ann Arbor Science for the People joined the protest against their conviction, calling for a new trial. Several of our letters appeared in local papers. If you too are outraged by this abuse of the legal system, we urge you to write the judge residing over the case (Judge Philip Pratt, Federal District Court, Federal Building, 231 Lafayette Blvd., Detroit, Mich. 48226), Attorney General Griffin Bell, or your local paper. Information on the case can be obtained from the Narciso-Perez Legal Defense Committee, 2516 Essex, Ann Arbor, Mich. 48104. (313)-665-0878).—Ann Arbor SftP

Congressional Testimony on Military Applications of Nuclear Technology, in 1973, reveals that scientists at Univ. of California-affiliated weapons laboratories led the way to the neutron bomb. Dr. Harold Agnew, Director of Univ. of Cal. Los Alamos Scientific Laboratory, explained, as follows:

Rep. Hansen: Could this weapon be designed to deliver a neutron dose of (deleted) to a distance of (deleted) from ground zero?

Mr. Agnew: Yes. It would exceed that.

Rep. Hansen: What would happen to a person who receives an instantaneous neutron dose of (deleted) or more?

Mr. Agnew: In a very short time, he would become very ill and would be incapacitated; in a day or so he would be dead.

Rep. Hansen: Do you know why (deleted) weapon has not been more fully exploited for battlefield use?

Mr. Agnew: I really don't know why people have not thought more on the use of these (deleted) weapons. It may be people like to see tanks rolled over rather than just killing the occupants. It is quite clear that there is rethinking going on in this as General Giller mentioned.

I know we at Los Alamos have a small, but very elite group that meets with outside people in the defense community and in the various think tanks. They are working very aggressively, trying to influence the DOD to consider using these (deleted) weapons

—Northern California Campaign to
Abolish Nuclear Weapons
1360 Howard Street
San Francisco, CA 94103

COLUMBIA UNIV. REACTOR UPDATE

Columbia and the Nuclear Regulatory Commission (NRC) have filed suit in New York to overturn the action of the City and the Board of Health prohibiting activation of the Columbia research reactor. (See *SftP*, July-August). The City's Corporation

NEWS NOTES, *contd.* on p. 12.

Using OSHA

Chip Hughes & Len Stanley

Although the hazards of carbon disulfide exposure were recognized as early as 1851 in France, little has been written about the chemical in the United States. Both liquid and vapor are highly irritating to the skin, eyes, nose and air passages. This local irritation, however, is overshadowed by the serious long-term effects on the body after the chemical has been absorbed through the skin and lungs. High concentrations rapidly affect the brain, causing loss of consciousness and even death. Lower concentrations may cause headaches and giddiness or lung and stomach irritation.

Prolonged repeated exposures to relatively low levels of CS₂ affect several parts of the body. Brain damage results in mental abnormalities such as depression, euphoria, agitation, hallucinations and

nightmares. Nerve injury can cause blindness when the optic nerve is involved or weakness of the arms and legs when peripheral nerves are inflamed.

In 1943, Dr. Alice Hamilton, a pioneer in occupational health in the United States, described the symptoms of CS₂ poisoning in her classic book, *Exploring the Dangerous Trades*. After studying workers in the newly-blossoming viscose rayon industry, she remarked that the men "knew that a distressing change had come over them, one they could not control. It spoiled life for them, it ruined their homes, it broke up friendships, it antagonized foremen and fellow workers, it made day and night miserable." The reactions are the same three decades later.

—C.H. & L.S.

Next time you open a bag of Fritos or a pack of cigarettes, think about Marvin Gaddy. Marvin has worked in Olin Corporation's Film Division for over 20 years making cellophane wrapping. He can't see as well as he used to and still gets nightmares every once in a while. He's watched the lives of many men change after they came off that second floor. Some got eaten up with tumors and cancer. For some, it got so bad they took their own lives. Others were luckier and got out with only minor nerve problems to remind them of what it was like.

The second floor is in the Chemical Building at Olin's Film Division near Brevard, North Carolina, on the edge of the Pisgah National Forest. The Film Division produces viscose which is extruded, solidified and dried to form cellophane. Twelve massive vats are kept in constant rotation, each mixing together 700-800 pounds of ripened alkali cellulose (raw wood pulp and 16 percent caustic acid). Marvin used to add carbon disulfide (CS₂) to the rotating vats, to quicken the process of breaking down the raw wood pulp into a liquid cellophane-like mixture. Nobody ever told Marvin and his fellow workers that the CS₂ could harm them. But they finally found out. Only then, it was too late.

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"A lot of people would leave," says Marvin. "The younger ones would come in there, work a few days, and then they'd invariably get a big whiff of CS₂. People would act real unusual, get headaches and think they were getting the flu. After a few overdoses, the nightmares would start coming on them. We'd go in and tell the company, 'Dammit, you'd better do something about this CS₂ stuff.' They'd tell us to get the hell out — 'we don't need you. If you don't enjoy your job, then go home.' Course we didn't have a union back then. And we didn't have Jimmy Reese rummaging through their trashcans and filing all those grievances and complaints."

James Reese is a maintenance man at the Olin plant and chairman of the union safety committee for Local 1971 of the United Paperworkers International Union (UPIU). Olin workers had to stand up and fight for more than 30 years before they got the union in at Olin. The battle left a trail of beaten-up organizers, fired union sympathizers, and heart-breaking, one-vote Labor Board election defeats. Finally, in 1971, the union won a contract which included a safety committee of company and union representatives. For the past five years, the committee has investigated numerous toxic substances: asbestos, carbon disulfide, formaldehyde, tetrahydrofuran, flax dust, noise, radiation, methyl bromide.

"I had learned the OSHA standards even before we got our union organized, til I almost had them mem-

orized. I was just kind of interested. It represented a kind of challenge to me because I've seen some of the conditions up there and I've been hurt on the job myself. I'm not sure what set me off. I think it's just the fact that I'm a kind of militant type of character and this way, for once, I had something that they had to listen to. I finally had a law to back me up."



Congress passed the Williams-Steiger Occupational Safety and Health Act of 1970 in response to escalating on-the-job injury rates and intense pressure from national unions. The act created the OSHA Administration within the US Labor Department, with the responsibility for inspecting the workplace for hazards and imposing penalties of up to \$10,000 when unsafe conditions were uncovered. In addition, the act gave rights to affected workers to assist them in cleaning up their plants. These workers' rights are the most important aspect of the law, because unions and employees cannot depend on the chronically understaffed and under-financed OSHA Administration to initiate enforcement. Workers can file a complaint requesting an unannounced inspection, accompany the OSHA inspector during his or her inspection, demand an investigation of potentially harmful substances, and challenge the amount of time given a company to clean up recognized hazards. For the members of Local 1971, OSHA has become a tool they can use to take matters into their own hands.

James Reese: "Back in September of '72, I heard from people that the company was gonna be doing these noise tests, so I went up there with them to see what was going on. This guy got on me pretty hot. He tried to get rid of me, and we got into a regular cuss fight over it. He says, 'You get out of here, you got no business in here.' I says back, 'I represent all the people in this union as their safety man.' He kicked me out of there, but I filed a grievance on it. In the first two steps of the grievance procedure the company said that the contract does not

allow that an employee can leave his work station at any time.

"So, then I got all fired up. I threatened to file charges with the federal government through OSHA on it. Well, that scared them, so they sent it up to the highest corporate levels. Pretty soon, a letter comes back from the higher-ups saying that we can watch any of their tests and also get all the records of what they find. This was just great.

"I was getting a lot of this stuff they were doing. I don't know whether they realized it or not, but I was making a lot of records. That's what I was really after cause records have a way of kinda flying back in your face. And that's what I was doing, getting it down on paper to show what their real attitude is toward safety and health — in spite of those big awards they got plastered all over the cafeteria walls and their reputation as a safe company."

The National Institute for Occupational Safety and Health (NIOSH) was set up by Congress in 1970 as the research arm for the OSHA Administration. At an employee's request, NIOSH inspectors will determine whether any toxic substance found in the workplace is causing harmful effects. Unfortunately, NIOSH does not have enforcement powers.

In July of 1973, a NIOSH industrial hygienist came to Olin's Pisgah Forest plant to investigate the CS₂. The NIOSH team went to the second floor and observed the leaky gaskets and pipes, and the air vacuums that clogged every once in a while. They also tested to see how much carbon disulfide was in the air when the big vats were opened for scraping. The dials on the NIOSH equipment went up as high as they could — 288 parts per million (ppm). The OSHA standard for carbon disulfide is 20 ppm.

According to Emil A. Paluch, a Polish research scientist: "From the toxicological point of view a concentration of about 300 ppm of carbon disulphide is the amount which exceeds almost everybody's tolerance in a comparatively short period of time and can produce serious pathological changes within a few days."

Three months later, NIOSH sent down a physician to do a follow-up medical survey on neurological problems with the workers on the second floor. He interviewed 29 men, most of whom complained about recurring nightmares, abdominal pains, headaches, dizziness and insomnia. He summed up his findings with a short statement: "A number of bizarre neurological findings were noted." Among his findings were the following:

A 34-year-old man worked 14½ years in the chemical building prior to his transfer. He has a several-year history of numbness, pains, and tingling involving the right side of his face. A neurological consultant for the company

diagnosed him with "a typical facial neuralgia."

A 44-year-old man with 22 years exposure. He has been on leave from work for two years with a vague arthritis-like ailment.

A 37-year-old man with 16 years exposure had the onset of a convulsive disorder two years ago beginning with a three-day period of status epilepticus. His doctor told him his seizure was due to "a swelled blood vessel in the temporal area." An extensive report by a neurological consultant hired by the company indicates no such finding to explain the onset of his epilepsy. He is currently depressed by his downgraded position (janitor). His neurological exam was normal.

"That last guy you read about, that was Jimmy Massey," explained Bert McColl, who suffers himself from a rare form of hipbone decay that makes walking difficult. "Massey got this stuff worse than anybody. They called it epileptic fits for a long time so they wouldn't have to pay no workers' compensation to him. First time it happened, he was just sitting there eating supper with his wife and kids. Then he started having a fit. So the company said, 'If it just happened at home, then it couldn't have anything to do with his work.' Later on, they found all the tumors.

"Jimmy Massey is still barely living over near Canton. They give him a few more months before the cancer will eat up his brain. His wife just had a baby recently. The family started runnin' out of money with all the medical bills they had to pay, so the company put Jimmy back to work again. They put him on the janitor crew, going around the plant picking up trash. He'd wander round and round not even knowing what he's supposed to do. He'd sit around by the time clock without even knowing when he should punch out.

"'Stogie' Sellers used to work with this stuff, too, until it got him so depressed that he took his gun and killed himself. George Sanders worked with us on the second floor, too. He used to empty all these trashcans full of CS₂. Boy, did he get a lot of fumes! I worked around him the week before he died and you could definitely tell that he was in a strain. He was awful bad depressed. He wouldn't say nothing to no one. His wife was pregnant at the time. He died of a shotgun wound one Saturday night. Everybody said it was just an accident."

At the end of April 1974, NIOSH finally released its health hazard evaluation report for the CS₂. The evidence showed that acute exposures to carbon disulfide had been occurring episodically and these exposures provoked the symptoms in the Olin workers. However, the report stated "there does not appear to be sufficient medical evidence at this time to warrant a conclusion that chronic exposure is occurring in a sufficient degree to provoke illness. Without question,

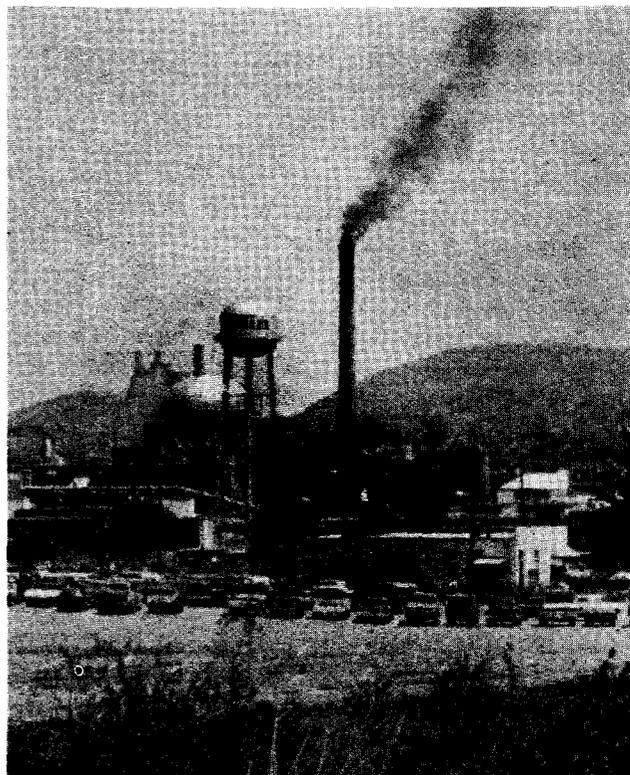
several atypical and unexplained illnesses were encountered during the study. Time may eventually resolve these diagnostic problems." The report concluded: "It is difficult to postulate that such diverse and asymmetric neurological problems are due to common exposure to toxic substances or due to some unusual personal susceptibility. Local problems of this type are probably related to chance distribution."

Marvin Gaddy: "That's all wrong. We can definitely show you why at least twelve out of these twenty-four people have had all these weird problems. They all worked with the CS₂. You see, it's really a nerve gas, at least that's what they used it for back in the war. The stuff goes about working on the weakest nerves that you got. Now, my nerves and Bert's are different. He can't walk or move around the way he used to; I can't see too good."

After the NIOSH study was released, some small changes occurred around the Olin plant. At least there were some written records showing what the carbon disulfide had done. The company had to post the report in the plant and some people started reading it and getting their own ideas. Workers started calling James Reese after hours and telling him about health and safety problems in their particular departments — fumes, chemicals, machines without guards, trucks without brakes, etc.

Some of the chemical mixers came to James one day with a label that they'd taken off a bag. They said

Southern Exposure



Olin Corporation's Cellophane Film Division

they'd just started using this dusty stuff called Cyclo-Fil, but the labels on the bag had worried them: "Caution — Contains Asbestos Fibers — Avoid Creating Dust — Breathing Asbestos Dust May Cause Serious Bodily Harm." When called by James, the company safety man said there was no asbestos in the plant — "that stuff is called Cyclo-Fil." James persisted and Olin agreed to send the material off to be tested by an impartial party. Two months later the report finally came back from the Georgia Tech research scientists. The next day they ordered that all Cyclo-Fil be taken out of the plant, and fired the purchasing agent who had ordered the material.

James Reese: "People have been turning up things, all these untested chemicals, like this kepone thing in Virginia. They had to even bury the plant and the St. James River got ruined. I think it's coming to the stage where industry is gonna have to first prove its point. It's not gonna work the way it's been working. Cause people, when they start to see what's really happenin', then they'll take things into their own hands and start closing these places down."

"The more pressure that's put on them, the more publicity that can get generated, you start to get results from pushing on 'em, from finding out stuff about kepone and vinyl chloride and asbestos. It's gonna start building, and people aren't gonna stand for it no more . . ."



For most employees in the South, occupational safety and health means little more than wearing masks and ear plugs. Corporate safety programs have mainly been built on the premise that the workers are to blame for the injuries or illnesses they receive from the workplace. As in the Olin situation, the existence of occupational diseases has historically been denied.

As the American chemical feast continues, the safety and health committee is emerging as a new structure for industrial self-protection. We can expect that the OSHA Administration will continue to limp along without adequate funds or personnel to enforce the law. James Reese and Local 1971 have learned that the only way to get the laws for self-protection enforced is to do it yourself. The companies learned this long ago. They are well protected and they know how to use the laws.

James Reese: "Olin brought Fletcher Roberts in here as the new 'Director for Safety and Loss Prevention' right after we started filing all those OSHA complaints. He's supposed to prevent them from losing money. In fact, he used to be the one who inspected all these companies around here for OSHA. . . It'll scare him to death when I talk about calling the OSHA inspector, the very people he used to work with. I wonder why? All I can figure is this reason with him. We kept giving Olin such a hard time and I was calling in outside people quite a bit. I wasn't making too many points, but at least things were getting uncovered. Fletcher Roberts has been put in here to soft-soap me and stop all us people because somewhere it's appearing on record in the corporate levels. Somewhere up there in Stamford, Connecticut, somebody don't like it."

Marvin Gaddy is still going to work in Olin's Chemical Building every day, although he's not up on the second floor anymore. They won't let him go back. Now he's got an easier job — no fumes, no scraping, no fear. "I may have to leave my department though. Especially on the graveyard shift, I feel what I'm doing, but I just don't see it. Like this morning, I had to pull up aside the road on the way home from work. My eyes started watering and blurring . . . I couldn't see. . ."

After he finished talking, he got up and headed toward the door of the union hall:

"All that we've told you is the facts. I've got only four more years to retirement and all I care about is helping somebody else now. What I've said here, I've told all the doctors, all the lawyers, all the company men. But they can't hurt me now."

"When you got a company that's got the kind of money that Olin's got and they go and tell their lawyers to fight on this and we'll feed you — that's the way the world is run. There's some people that get caught and some that don't . . . Now Nixon, course he got caught." □

ORGANIZING FOR A SAFE AND HEALTHY WORKPLACE

The first step for workers concerned about occupational safety and health issues is to find out what dangerous substances they are exposed to. Many workers, like those in the Olin plant, accept the minor irritations of toxic fumes, dust and noise as a part of their jobs without realizing the effects of long-term exposure. Most workers are also unwilling to take the risks of speaking out about working conditions until they understand the serious harm caused by toxic substances.

If a company will not tell its employees what they are being exposed to in the workplace, an employee has a number of different options. If the plant is unionized, then the worker should first seek technical assistance from the international union. The Oil, Chemical & Atomic Workers (OCAW) in Washington and the United Rubber Workers (URW) in Akron, Ohio, both have excellent resource materials on industrial health hazards. An essential book for workers concerned about health hazards is *Work is Dangerous to Your Health*, by Stellman and Daum. This paperback book lists symptoms of various occupational diseases and the toxic effects of numerous industrial chemicals.

In the South, a number of organizations have begun to assist workers in seeking information about occupational health problems: N-COSH, Box 594, Durham, N.C. 27701; Southern Institute for Occupational Health (SIOH), Box 861, Cayce, S.C.; Occupational Health Studies Group, University of North Carolina, Chapel Hill (funded jointly by the United Rubber Workers and the rubber industry); and the Institute for Southern Studies, Box 230, Chapel Hill, N.C.

Urban Planning Aid has published a booklet that workers should find an invaluable reference. "How to Use OSHA" is especially thorough in its coverage of complaints, inspections and follow-up procedures. The

booklet may be ordered from: Urban Planning Aid, 639 Massachusetts Avenue, Cambridge, Mass. 02139. Individual copies are 75¢, bulk orders of 15 or more, 50¢.

Once a worker has discovered an occupational hazard, there are a number of different handles for fighting the problem. In a unionized plant, the grievance procedure may be the most effective first step. Many unions are also strengthening their positions by negotiating safety and health clauses in their contracts specifying the company's obligation to provide information on harmful substances, access to exposure records for industrial chemicals, the right to refuse unsafe work, and equal decision-making power for the union safety and health committee. In a non-union shop, where an employee has no protection in complaining about unsafe conditions, filing an OSHA complaint may be the best tactic.

Under the OSHA law, workers are given the right to file a complaint requesting an unannounced inspection while remaining anonymous to their employers. The OSHA complaint process gives employees an added weapon to bring to bear against negligent employers, but it can only be effective when pressure is also brought to bear on the government to enforce the OSHA laws. When the OSHA inspector visits a plant for an inspection, workers have the right to have a recognized representative accompany the inspector to point out unsafe and unhealthy conditions.

The newly-won right to a workplace "free from recognized hazards" coupled with the unbridled proliferation of toxic substances in the workplace have combined to make occupational health one of the most controversial issues of the 1970s. Education and action by workers on the job can begin to make this right a reality.

—C.H. & L.S.

NEWS NOTES, *contd. from p. 7.*

Counsel is fighting the case. Originally, Columbia had requested a hearing before the City's Dept. of Health but now has requested an indefinite postponement. Many opponents of the reactor filed notices for time to address the hearing. It is probable that the NRC and Columbia will base their case on the power of the Federal Government to supercede the actions of a city or subordinate body, and it appears that Columbia is moving for a quick trial. Although the Ad Hoc Committee is not a

litigant in the case, we are following the situation with diligence.

—Ad Hoc Committee Against
Columbia's Reactor

MOZAMBIQUE

The People's Republic of Mozambique is recruiting all categories of health, education and technical workers to participate in the reconstruction of the country following the victory over colonialism. For further details apply to Mozambique and Guine Information Centre, Top Floor, 12 Little Newport Street, London WC2H 7JJ England. Tel: 01-734-9541.

—*Science for People*, No. 35, Spring '77

THE RADIOACTIVE FLUSH

"Please don't flush the toilet while reactor is running." — a warning notice in the University of Florida's nuclear reactor building.

The Knight News Service reports that flushing the toilet causes low water pressure in a cooling system in the small, experimental reactor, which can cause it to overheat and damage itself.

—*The Real Paper*
Sept. 3, 1977

Carter's Energy Plan: Our Cloudy Future

Barry Commoner

President Carter's Energy Plan is being promoted in the name of environmental quality and conservation. But the Plan isn't a conservation plan. It is a covert plan to change the technological and economic structure of the United States energy system. It would block solar energy and foster nuclear power, increase corporate control over our lives, and further the potential for political oppression.

The following is an abridged and revised version of a talk given by Barry Commoner at the Toward Tomorrow Fair (a fair on alternative futures) at Amherst, Mass., on June 27, 1977.

I'm really glad to be here . . . because walking around the fair and looking at the baby eels, the compost toilets, the windmills, the anti-nuclear exhibits, you get a real sense of harmony. The Clamshell people understand what the eels are doing, and I think if the eels could talk they would understand what the Clamshell people are doing. There is a sense of people in harmony with each other here . . . everyone is calm and good-natured. And if the rest of the world were like the fair, and, in fact, like the Pioneer Valley, I think we could all go home happy that tomorrow is going to be a good one . . . but . . . *but*. I'm here to talk about the *but*.

Let me talk with you about the rest of the world outside this valley. While all of this is going on here, we have been told by Mr. Carter, in very Churchillian tones, that his plan for using energy in the United States must be enacted quickly, and without change, by the Congress or else we will face a catastrophic end to all our hopes. So, while we are learning from each other here about the future of energy in the United States, Mr. Carter has laid before Congress a plan for our energy future which he says has to be enacted by Congress in

Barry Commoner works at the Center for Biology of Natural Systems at Washington University in St. Louis, Missouri. His most recent book is The Poverty of Power.

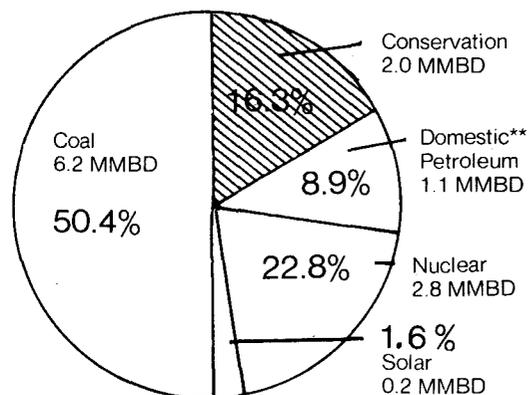
three months. (And we later learn that the House, under great pressure from the White House, did in fact meet this deadline.)

The Carter National Energy Plan claims to have energy conservation as its cornerstone; but it is *not* a conservation plan. From the tables contained in the White House publication, *The National Energy Plan*, we can see that with the Plan in effect we would be using only 4 percent less energy in 1985 than without the Plan. That isn't much conservation. The Plan is designed to affect how we would meet the increased demand for energy between now and 1985. It would use nuclear power more than conservation to accomplish this task. According to the Plan, of the increment in energy demand between 1976 (the last date for which we have numbers) and 1985, 16.3 percent would be met by conservation, while 22.8 percent would be met by nuclear power. When Mr. Carter says that the "cornerstone" of his Plan is conservation, I say he's mislaid the cornerstone. It belongs in front of the Seabrook nuclear power plant.

The Plan claims to foster solar energy. But if you look for the contribution from solar energy, it's a little hard to find. Of the projected 1976-1985 energy increment, with the Plan in effect, according to the original statistics, 1.6 percent would be met by solar energy. Dr. Schlesinger, in later testimony, reduced that figure to one percent. That is not a plan to foster solar energy. About 50 percent of the 1976-1985 increment in energy demand would be met by coal, 8.9 percent by domestic petroleum, with no increase in imported petroleum, over the present figure.

The National Energy Plan

How the 1976-1985 Increment In Energy Demand (12.3 Million Barrels of Oil/Day) Would Be Met*



*During this period natural gas and imported oil supplies decline, and therefore do not contribute to meeting the increment in demand.

**Includes refinery gain.

What I'm saying then is that this is not a plan to reduce the amount of energy that we use by conservation. It is a plan to shift the *kind* of energy we use. Only 2.7 percent of our present energy budget is met by nuclear power, but the Plan will meet 23 percent of the increased demand in 1985 (over 1976 figures) with nuclear power. Only 20 percent of our energy budget is met by coal, and it would go up to 50 percent of the increment. And, of the different ways of producing energy, the two that have the heaviest impact on the environment, coal and nuclear, would represent 73 percent of the 1976-1985 increase in the national energy budget. So when President Carter says the Plan is intended to protect the environment, my answer is "Good luck. You've got quite a job."

Let me give you a little more information about what the Plan would and would not do. Carter claims that the Plan is equitable; its burdens are shared equally among different economic and social sectors. This claim is false. For example, at the present time, consumer and industry each get about 37 percent of the energy budget. Transportation, which is about half personal consumption (passenger cars) and half industrial freight, makes up the rest. With the Plan in effect, of the new energy that would be made available, 68 percent would go to industry and 20 percent to consumers.

In other words, the Plan does the opposite of what it claims to do. It is a form of *rationing*, of diverting energy away from consumers to industry. And the industries that use the most energy are the ones that use it least efficiently (that produce the least amount of economic gain per unit of energy used). For example, of all manufacturing industries the petrochemical industry

has the lowest economic gain per unit of energy used; it is an energy hog. And what the Plan does is to give the energy hogs a bigger trough out of which to feed, at the expense of the consumers. I don't call that equity.

Despite Mr. Carter's claims, the Plan would not foster solar energy, but would block the entry of solar energy into those areas where it is now economically competitive. That comes about by another strange shift that's in the Plan, which changes the way energy is divided between direct heat and electricity. The Second Law of Thermodynamics tells us that whenever you make electricity out of heat, you literally throw away two-thirds of the energy in the form of low temperature heat. When a fuel is used directly for heat, it is used much more efficiently. The efficiency with which energy is used depends on a good match between the energy-requiring task and the form in which the energy is supplied. Electricity is the most appropriate form of energy for accomplishing certain tasks, particularly those requiring mechanical motion: transportation, operating tools or a washing machine. But there are many tasks, for example, warming your house or the hot water in the washing machine, where electricity is *not* suitable. When applied to resistance heating, electricity is less than one percent efficient. So, what we do with direct heat and electricity determines the overall efficiency with which energy is used. For example, 30 percent of the electricity produced in the United States today is used for space heat. This wastes 99 percent of the energy that's available from the fuel used to produce electricity and greatly reduces the efficiency with which energy is used as a whole.

The great conservationist plan of Mr. Carter would sharply shift the balance between direct heat and electricity toward more electricity. In the 1976 budget, 46 percent of the energy was used as direct heat, 28 percent as electricity and the rest for transportation. The incremental change between 1976 and 1985 that the Plan mandates puts only 36 percent of the energy into direct heat, and 53 percent into electricity. Given the extremely inefficient ways in which electricity is used, this shift is bound to waste energy, not conserve it.

You might say "Well, why suddenly all that electricity?" The answer is simple. All a nuclear power plant can do and most of what you can do with coal is to make electricity. If you're going to sharply increase coal production and the building of nuclear power plants — the Plan calls for a sharp increase in the current rate of nuclear power production, mandating 90 new ones by 1985 — there will be a big increase in the availability of electricity relative to direct heat from fuel. And you'll have to do something with all that electricity. What the Plan does is to *reduce* the use of oil and natural gas for direct heat, in favor of electricity, especially in the consumer sector. This would be not only inefficient, but would also intrude upon the major market which is open

to solar energy today. One of the economically competitive forms of solar energy today is solar collectors for space heat and hot water in residences and commercial buildings. The other is the production of methane from organic waste, which could provide gas to use for direct heat. If the Plan goes through, homes will be intensely electrified, rather than solarized. The Plan would block solar energy from the one market open to it today.

Many people believe that Mr. Carter, if not against nuclear power, is certainly against the breeder. The reason why people believe that is because three weeks before the Plan was introduced, Mr. Carter announced that he opposed developing a plutonium economy — on which the breeder being built at Clinch River depends — and proposed to stop further construction of that breeder as well. Yet the breeder is essential if there is any sense to the Administration's aim of expanding the construction of conventional reactors. Present nuclear reactors will run out of natural uranium fuel in perhaps 20 or 25 years. Schlesinger has extended that figure, but the National Academy of Sciences has now confirmed the shorter projection once again. Uranium, like oil, coal, and natural gas, is, after all, a nonrenewable fuel, and we will run out of it; in fact, at the present rate, we're going to run out of uranium faster than any other fuel that we now use. It's ridiculous to go ahead and accelerate the building of light-water reactors that use uranium fuel, with the expectation that 20 to 25 years from now they will have to say, "Sorry, we haven't got any more fuel!" We'll then have radioactive white elephants all over the country and be in serious trouble with our energy supply.

The breeder, of course, would extend the availability of natural uranium fuel, perhaps to two thousand years, and I'm willing to call that a renewable resource. So, nuclear power could become a renewable resource that would last indefinitely into the future, but *only* with a breeder. Going back to the National Energy Plan, it states:

"It is the President's policy to defer any commitment to advanced nuclear technologies that are based on the use of plutonium, while the United States seeks a better approach to the next generation of nuclear power than is provided by plutonium recycling and the plutonium breeder . . . The President has proposed to reduce the funding for the existing breeder program, and to *redirect it toward the evaluation of alternative breeders, advanced convertor reactors, and other fuel cycles.*" (Emphasis added)

If I understand the English language, this says that despite the common belief, Mr. Carter is in favor of a breeder, but one that doesn't use plutonium. According to one report, he is convinced that a *thorium* breeder will take care of our energy needs for "hundreds of years." There you have it. Now the Administration's support for conventional reactors makes "sense." The

Plan is based on pushing nuclear power today, with the expectation that, by the turn of the century, when we run out of uranium, there will be a thorium breeder to keep the system going. The Plan would, covertly, lock us into a nuclear future.

The fundamental cause of the energy crisis is that we depend on nonrenewable energy sources. Obviously, the sensible answer is to switch to a renewable source.

The breeder reactor is essential if there is any sense to the Administration's aim of expanding the construction of conventional reactors.

To really solve the energy crisis, as against delaying it or confusing it, we have to undertake a transition from nonrenewable sources — oil, natural gas, coal, and uranium — to renewable ones. Now there are only two possible renewable sources: nuclear power *with* a breeder, or solar energy. As you know, solar energy means not only solar collectors, but also windmills (the sun makes the wind blow), converting garbage and other organic wastes into methane, and solar photovoltaic cells for electricity. The amount of solar energy falling on the earth is hundreds of times more than we need. So, nuclear power with a breeder or solar energy are the two alternatives for *renewable* energy.

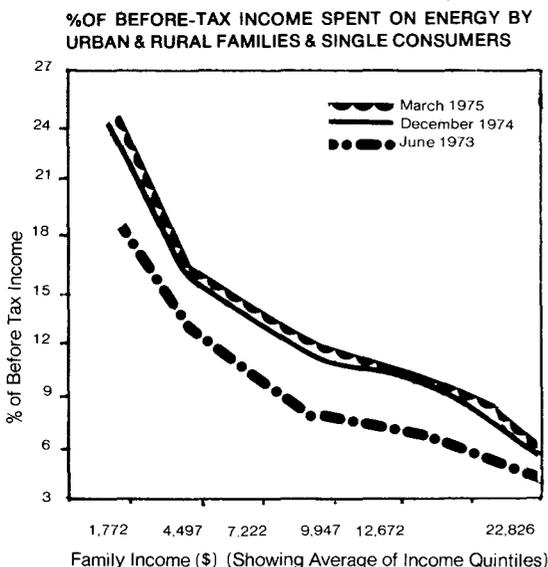
I want to compare the two alternatives. First, some comments about nuclear power. Remember that thermodynamics tells us that the only way to efficiently use energy is to match the energy *source* to the energy-requiring *task*. That single idea is a tremendously important thing. It means if I want to cook an egg, the task is to boil water. If I want to go somewhere, the task is to move from here to there. You have to ask what form of energy is most suited to boiling the egg or moving about.

Nuclear power is a way of accomplishing what task? Boiling water! That's all it does! The heat generated by the nuclear reaction boils water and makes steam, which runs an electric generator. There are, after all, alternative ways of boiling water, and so you have to ask yourself, "Compared with alternative sources of energy, how well-suited is nuclear power to the task of boiling water for steam?"

To put the matter simply, there is a bad mismatch between the enormous intensity of the energy generated by a nuclear reaction and the task that it is supposed to accomplish — which can readily be carried out by far more benign energy sources. The attempt to contain — only partially thus far — the damage that can be done by nuclear energy is what has made nuclear power so expensive. Many of these dangers have been pointed out by environmentalists, forcing the utilities and the

government to agree to remedial measures. It was environmentalists, for example, who called the utility's attention to the fact that it was unwise to locate a nuclear power plant at Bodega Bay, California, on the San Andreas earthquake fault. The utility and the AEC had to agree, and ever since, every proposal to build a nuclear power plant is supposed to show that it will be free of earthquake damage. And lots of mistakes have been made; the Humboldt plant in California has been shut down permanently because it has now been discovered that it is too close to an earthquake fault. The attempt to meet these problems explains why nuclear power has become so expensive.

There has been a big argument about the reliability of nuclear power plants. People like Charles Komanoff and others have pointed out that nuclear plants run at an average of 50 percent capacity, whereas coal plants run at around 65 percent. Schlesinger has just admitted that they run at a lower than expected capacity. This, too, is evidence that nuclear power is a technologically unsuitable way to boil water and make steam — its resultant faults make it an unreliable way to produce electricity. Another point is that all you can get out of a nuclear power plant is electricity, while with conventional fuel-burning plants the waste heat that is inevitable whenever fuel energy is converted to electricity can be recovered and used to heat nearby homes, for example. But with a nuclear power plant that is impossible, because you can't get near them. You can't put a nuclear power plant closer than 25 miles from a city. Nuclear power is simply a technology which is thermodynamically inappropriate to the task. Its inherent dangers lead to inefficiency, and therefore to a great deal of expense, compared to other ways of producing electricity.



Family Income (\$) (Showing Average of Income Quintiles)
 Source: Calculations made from BLS consumer expenditure data for 1972-73 and adjusted to December 1974 and March 1975 prices.

The other feature of the nuclear route is a further concentration and centralization of energy sources. For one thing, breeders are much bigger than light water reactors. And the bigger the plant, the cheaper it is to produce electricity. You cannot make a little nuclear power plant in your back yard for your own use. If you did, and complied with all the regulations and so on, it would make no economic sense because it would be an

There are only two possible renewable sources of energy: nuclear power *with* a breeder, or solar energy.

enormously expensive way to get electricity. You'd be much better off hiring your friends to ride on a stationary bicycle and run a generator . . . at high pay!

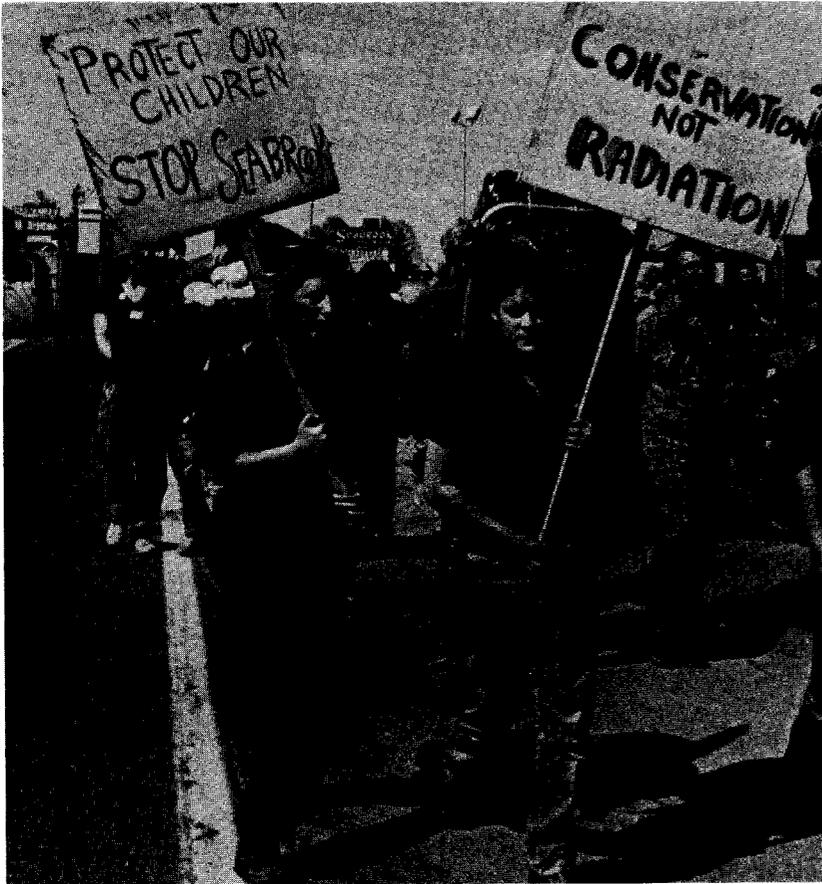
Because of this economy of scale, nuclear power necessarily means enormous, centralized power plants. First, because it's economically effective. Second, because of the inherent dangers, and because there are a lot of people, like the Clamshells, who don't want to live near them, nuclear power plant locations must be limited. I can assure you that after Seabrook the utilities have been convinced that the less they have to confront people the better off they are. This means fewer and therefore bigger plants. Another reason is that a few big nuclear plants are easier to protect than many smaller ones. If the plant uses plutonium somebody can steal a handful and make a bomb. (If it's thorium, it might take a few handfuls to make a bomb.) Therefore, nuclear power has to be militarily protected. Do you know that the bill establishing the Department of Energy gives the Secretary of Energy authority over transferred military personnel? It's the only nonmilitary department, to my knowledge, that has that right. Why? Because everybody knows that military control over those power plants will be necessary to protect them.

In the future, then, we would have the country dependent on one essential source of energy, and that would be in the hands of whoever controls the military, and whoever can afford the multi-billions of dollars to build the installations. *That's not us.*

I'll put it to you very simply: *If the Carter Plan goes through, and we take the nuclear path, we will be creating the energy basis for fascism in the United States.*

Let's compare the nuclear route to the solar route. One of the marvelous things about solar energy is that there is no economy of scale. If you want to build a big solar panel, you simply take a lot of the small collectors and lay them side by side. Each one operates at the same efficiency, and, as a result, the overall efficiency of a big panel is no better than the efficiency of a little panel.

Photo by Ellen Shub



The basic fight here is for people to gain control over their own lives through the crucial resource of energy. If we choose the solar route, we can move toward economic and political democracy.

The point I am making is that solar energy is a threat to the present economic structure of the energy system. And it's a threat to anyone who thinks they're going to be able to develop and control the economy and the political life of the country through energy. Because if we have solar energy, we'll all be in control of our own energy.

So there are two paths: The nuclear path leads toward the domination of our lives by whoever controls large energy sources. The solar path leads to our controlling our own lives. The trouble with the Carter energy plan is that it makes a covert decision to go nuclear.

And I think we've got to uncover that

And so here is a form of energy which the multi-billion dollar corporation has no advantage in owning. You don't have to be a multi-billion dollar corporation to build a solar collector system. You can be only a multi-million dollar corporation and do as well, and even a \$100,000 contractor in a small town, or you can do it yourself, all with the *same* efficiency. If we take the solar route, it will no longer be economically advantageous to the multi-billion dollar corporations to operate the country's energy system. They will have to find something else to do with all that money. What's more, once a solar collector or solar cell is purchased, energy is then removed from the economy. It's no longer a commodity. The people who need it can make it for themselves without relying any further on huge corporations.

Another important point is that solar energy is a disseminated, decentralized source of energy. The only need for a central power network would be to accept the excess power from local sources and then feed it back when it's needed. In other words, when the wind is blowing and producing more energy than you need, you should be able to transfer it back into the network, and when the wind isn't blowing, you should be able to draw out of the network. The utilities are now getting pushed, legally, in that direction. If we adopt solar energy, the utilities would be reduced to a minor, supporting role.

hidden goal. How many people know about the statement regarding alternative breeders? Very few. The country doesn't know where it's being led. The Carter Plan is being promoted in the name of environmental quality and conservation. But the Plan isn't a conservation plan. It is a covert plan to change the technological and economic structure of the United States energy system, to centralize it, to increase the control of the very large corporations over it.

A lot of people are concerned about the fact that unions are sometimes allied with the utilities in supporting nuclear power, because, they are told, electricity is needed for jobs. In New England, where significant amounts of energy come from nuclear power, they say that any obstruction of nuclear power will mean heavy pressure on the economy of New England. It'll create unemployment, we're told. How much sense does it make to say, "If you close down a nuclear power plant, or don't build one, inevitably people will lose jobs." Why would people lose their jobs? Where is it written on golden tablets that the only way to produce energy is from a nuclear power plant? Alternatively, we could burn wood and provide jobs, or develop solar energy and provide hundreds of thousands of jobs. The people won't suffer from lack of jobs if they can make the decisions about what kinds of energy is produced and what

we do with it — and if the availability of jobs is made an integral part of that decision.

For example, who decided that we had to switch, after World War II, from washing ourselves in soap to synthetic detergents which pollute the water? This was decided by the corporations that make soap and detergents. Why did they decide this? It's no revolutionary insight when I tell you that the reason they decided to

Where is it written that the only way to produce jobs is from a nuclear power plant?

switch to detergents was what they called "the bottom line." They discovered that it is more profitable to make detergents than soap. So *they* decided to give us all of the problems inherent in the use of detergents. Not only pollution, but the fact that detergents are made out of petroleum. They decided that for their own sweet reason, which was to enhance their profit.

It is nothing startling to remind you that decisions to produce commodities that pollute the environment, to build power plants that waste energy and threaten us with radioactivity, are governed by a single idea: that the people who own capital have the right to make those decisions and do it for their own profit, while the rest of us suffer the consequences. There is no way to solve the energy problem, the environmental problem, or for that matter, the unemployment problem in the United States until we begin to learn how to govern the decisions about what we produce and how we produce it according to what the people need, not what the profiteers hope to gain.

That's a very basic thing. It means the social governance of the means of production. And I have to remind you that the technical definition of socialism is public ownership and governance of the means of production; I have just described part of that definition.

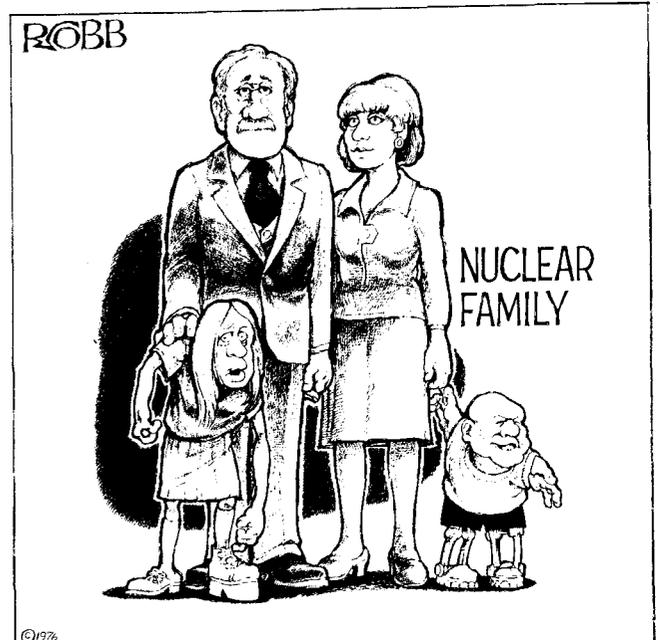
You might say, "You know, socialism has been tried, all over the world, in the Soviet Union, China, Cuba, and it doesn't work too well." Well, my answer, although perhaps a little crude, is that it's entirely possible to be socialist and stupid at the same time. What do I mean by that? Well, I said this straight out to friends in Poland when they bought the Corfam plant from Dupont to make plastic shoes that pinched (that's why Dupont dropped the project). The Poles decided to buy it to get hold of "advanced technology." But in a country where there are more horses than people, and which produces enormous amounts of leather, this is a big mistake. Nor do I accept the conventional wisdom about the inefficiency of socially-governed operations: "Look at the Post Office." My answer is "Look at the

Federal Aviation Administration," which operates the airports and air traffic control system on which everyone — including reactionary, anti-socialist politicians — willingly relies for their lives.

The energy problem has brought us to a fateful crossroads. If the Carter plan goes through, we will be taken down the nuclear route, ending with a grave threat of concentrated corporate control and political oppression. If we choose the solar route, we can move toward economic and political democracy. Such a decision is too important to be left to a few days of debate in the Congress. Such a decision must be made by the people of the United States, on the basis of a full, open, national debate, deciding for themselves how energy is to be produced and used.

We've got a basic fight here. The fight is for people to gain control over their own lives through the crucial resource of energy. If the Carter Energy Plan goes through, we will have lost the first battle. We've all got to get together today . . . and go back to our communities, back to our colleges, and begin to relieve the confusion about energy, unearth the Administration's covert goals, and explain the real alternatives.

A few years ago there was a big secret in the United States — that the United States had committed itself to a dreadful war in Vietnam. Very few people knew it. Very few people knew that our observers were there killing people. The end of the war in Vietnam began on the day when the teach-ins brought the truth to the people: that there was a war going on that nobody wanted. There is another secret in this country today. The President and the Administration are trying to commit us to a nuclear future. We've got to reveal that secret, and let the people know that we can go to the sun.



ABORTION LEGISLATION

On June 20, 1977, the U.S. Supreme Court announced its decision (6 to 3) that it is within the power of states to deny welfare funds for elective abortions. Immediately, in Connecticut, Governor Ella Grasso declared that unless an abortion is medically necessary the state will not pay for it. In Michigan, Nebraska and Minnesota pro-life forces began pushing for laws that will eliminate public funding for elective abortions and in Massachusetts two laws are pending before the legislature to prohibit the Dept. of Public Welfare from paying for abortions.

Only three judges dissented from the ruling: Harry Blackmun, author of the 1973 rulings on abortion, William J. Brennan, Jr., well known for his egalitarian views and Thurgood Marshall, the only black member in the court's history. Marshall argued that: ". . . the opponents of abortion have attempted every imaginable means to circumvent the commands of the constitution and impose their moral choices upon the rest of society. The present cases involve the most vicious attacks yet devised. The impact of the regulations here falls tragically upon those among us least able to help or defend themselves — as the court well knows, these regulations inevitably will have the practical effect of preventing nearly all poor women from obtaining safe and legal abortions . . ."

Contraception backed up by abortion has been the means by which most women have regulated their fertility. Since the legalization of abortion in 1973, hospital admissions for abortion-related complications declined between 50% and 80% across the country. In 1973, the first year that abortions became legal, there was a 40% drop in maternal mortality from abortion. Also, in New York, where many poor women have had access to legal abortion there has been a decline in infant mortality, due to the fact that women have been able to postpone their pregnancies until their situation made it easier on them to have children.

The Supreme Court decision has scary overtones. According to the majority opinion it is acceptable for states "to make value judgements favoring childbirth over abortion and to implement that finding by the allocation of public funds." Also that a state's "legitimate demographic concerns could constitute a substantial reason for departure from a position of neutrality between abortion and childbirth." In other words, according to states' economic and political interests it will be OK to use public funds to manipulate population through the control of women's bodies.

Poor women, black and white will now have to pay for their abortions. This will mean in the vast majority of cases an end to safe and legal abortions. This decision will have the effect of coercing poor women to bear children or to resort to "coat-hanger" abortions. It will also force many women to abandon safer ways of contraception like diaphragms or condoms and to get back to birth control pills which have proven to be more dangerous but also more effective. This is a real threat to the health of fertile women.

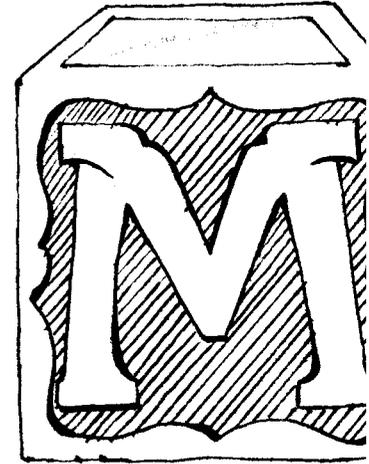
Justice Powell, Jr., writing for the majority, asserted that the measure does not "impinge upon the fundamental rights" to an abortion. But the constitutional guarantee of equal protection under the law is made a mockery of if a woman who uses Medicaid for her health needs has an abortion excluded from the services available to her. If states can pay for pregnancy and childbirth, and not for abortions, who is defining what is "medically necessary"? Obviously the all-male court has now singled out poor women but the right of all women to control our wombs is under attack. What the Court is saying is that we women have to pay for our rights, we cannot have them "for free."

At the national level nine out of the necessary 34 states have approved resolutions asking Congress to call a constitutional convention in order to amend the constitution to prohibit abortion. The states are: Rhode Island, Arkansas, Indiana, Louisiana, Missouri, New Jersey, South Dakota, Utah and Massachusetts. In order to prevent this, Congress may act quickly on one of the 40 versions of an amendment already introduced to overturn the original 1973 Supreme Court ruling.

There is a logic in all this. The Court has not recognized abortion as a fundamental right for women. We are heading right back to where we were 4 years ago. The simple truth is that what should be ours by right is being sold to us.

—Rita Arditti

Blaming the Victim:



Hyperactivity & Social C

Patty Bronson

While addressing a conference on "The New Nutrition," Dr. Benjamin Feingold stated: "As many as seven million children have been diagnosed as having serious learning problems. About five million are considered hyperactive. At least two million are being treated with drugs, usually Ritalin or amphetamines, in an attempt to control their wild behavior. No one expects these drugs to cure hyperactivity. All they can do is mask it and they might be doing much more. They are certainly making zombies out of a goodly percentage of the younger generation."*(1)

Peter Schrag and Diane Divoky, in their book *The Myth of the Hyperactive Child*, describe the development and increasing use of psychosocial and psychochemical techniques, based on an ideology of "early intervention" which regards almost every form of undesirable behavior as a medical ailment requiring medical treatment. The acceptance of such an ideology by doctors, parents, drug companies, children, teachers, health professionals and school officials has profound implications for our entire society.

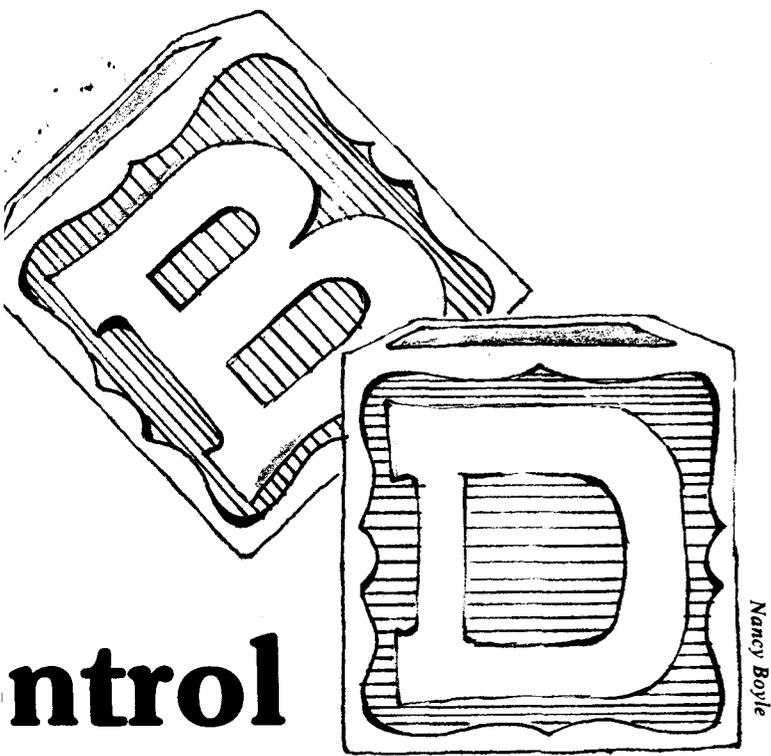
In 1957, Maurice Laufer announced the discovery

*Dr. Feingold has implicated food additives as a partial cause of hyperkinesia and has successfully treated children with a salicylate-free diet.

of a new syndrome which he called "hyperkinetic impulse disorder." The most striking symptom of the disorder was hyperactivity. "The sickness, in brief, was the inability to function in school."(2) Symptoms include a short attention span, impulsiveness, irritability, explosiveness, poor powers of concentration, and poor school work. Definitions of the term hyperkinesia have become increasingly vague. The term now includes virtually all forms of social and academic nonconformity.

Through the work of Sam Clements and his task force at the University of Arkansas Medical Center, in 1966 a new label, Minimal Brain Dysfunction (MBD), was chosen for "clarification" of this disorder. MBD is an encompassing term which covers hyperkinesia, hyperkinetic behavior disorder, functional behavior problems, overactivity, hyperactivity, cerebral dysfunction and up to thirty other terms. In explaining the choice of words, Schrag and Divoky say, "The 'minimal' indicated the absence of extreme behavior and 'dysfunction' was used to get around the necessity of finding an organic problem."(3)

Despite volumes of basic research and clinical observation, hyperkinesia is still not understood. An HEW panel reported that "the major symptoms are an increase of purposeless physical activity and a significantly impaired span of focused attention."(4) They



behavioral. No current neurological test or combination of tests can differentiate hyperactive or MBD children from "normal" children. "The only advance made during the past ten years has been the recognition that the hyperkinetic syndrome does not necessarily indicate organic brain damage."⁽⁵⁾ As many as 300 possible MBD symptoms have been identified to date. These symptoms are so general that any child might exhibit any of them. The following list is a part of the "clarification" literature presented by Sam Clements and his task force some years ago:

"spotty or patchy intellectual deficits," "achievement low in some areas, high in others," "hyperkinesis" or its opposite "hypokinesis," "general awkwardness," "slowness in finishing work," "reading disabilities," "arithmetic disabilities," "poor printing, writing, or drawing ability," "easy fatigability," "peer group relationships generally poor," "thumb-sucking, nail-biting, head-banging, and teeth-grinding in the young child," "slow to toilet train," "explosive," "sleep abnormally light or deep," "physically immature, or physical development normal or advanced for age," "possibly antisocial behavior," "possibly negative and aggressive toward authority," "sweet and eventempered, cooperative and friendly," "impaired ability to make decisions, particularly from many choices."

also concluded that there is no known single cause of the disorder. Although most of the names listed above suggest brain damage, virtually all symptoms of MBD are



It is obvious that hyperkinesis (hyperactivity or MBD) does not have a very precise and distinct clinical meaning. But in spite of its obvious faults, the Clements work became a staple in educational theory and legitimized the diagnosis of MBD. It is estimated that anywhere from 15 percent to 40 percent of our children are labeled as "learning disabled" or "hyperactive." The extensive literature never clarifies what exactly we are dealing with here. I am extremely concerned because up to two million children today are being "treated" for this so-called disease, with medication whose safety is questionable.

There are several different approaches used for treating children diagnosed as having MBD. These include educational, recreational, medical or psychological treatment, or some combination of these. Even though very few children have a problem serious enough to require chemotherapy (the use of behavior-modifying drugs), it is the most common method of treatment. Ritalin is the most commonly prescribed of the stimulant drugs; other such drugs include Benzedrine, Mellaril, Dexadrine and Thorazine. The use of these psychoactive drugs to modify behavior has become a standard medical practice. However, it should be made clear that "drug therapy neither cures the child nor corrects the cause of the behavioral disturbance."⁽⁶⁾ It does not get to the root of the problem. In addition, no long-term studies have been done which unambiguously demonstrate that this therapy is safe over extended periods of time. It seems to be generally accepted that chemical therapy allows the child to "conform" or "maintain" within the system which decided that he or she is somehow abnormal. Doctors, teachers, and parents report that the stimulants help children sit, concentrate and learn without making them sleepy or "dopey." It is thought that drug treatment can improve the child's

self-esteem and the attitudes of teachers and parents toward the child.

There are numerous risks involved in the use of these drugs and these should be seriously considered. Such treatment may cause psychological damage in as much as the child comes to see Ritalin or another drug as the magic pill that makes his or her behavior good. But where do standards of 'good' come from? Perhaps the child was only disturbed or bored by a teacher or classroom situation. The possible connection between childhood dependence on behavior-modifying drugs and drug abuse in later life is not yet understood. There is always the risk that the children, doctors and parents involved will come to see the medication as a cure-all. Alternative solutions are often ignored and efforts of adults to understand the child and help by other means may be lost when behaviors are masked.

Ritalin (methylphenidate), marketed by Ciba Pharmaceutical Co., is classified as a stimulant and is related to the amphetamines. The action of the drug on brain chemistry is not fully understood, but it has been known since 1937 that stimulants can produce a "subduing effect" on children. Ritalin falls under Schedule II of the Controlled Substances Act, the most restricted classification for marketed drugs. It is regarded by the FDA and the Bureau of Narcotics and Dangerous Drugs as a "dangerous drug." According to John Finlator, deputy director of the Bureau of Narcotics and Dangerous Drugs, Ciba produced 334,000,000 dosage units of Ritalin in 1970.* Since 1972, federal regulations have prohibited the drug companies from promoting products like Ritalin directly among parents and teachers. "The regulations do not, however, prevent the firms from promoting the ailment or from defining it in the broadest possible terms, a process that is reinforced by the extensive set of relationships between the drug companies, certain doctors and research teams, and the lay movement."⁽⁷⁾ While we don't know how extensive these connections are, or the amounts of money involved, it is in the interests of the drug companies to promote the existence of the disease and thus a market for their product.

Treatment with behavior-modifying drugs provides only symptomatic relief of the "problem behaviors." The duration of the treatment varies from 6 months to 6 years. Some believe these drugs are probably among the safest ever discovered; when used in medical dosages they are said to have essentially no major toxic effects.

*Abbott Laboratories has invested \$10 million in "Cylert," a new drug now ready for marketing for use on MBD children.



The 1973 edition of the Physician's Desk Reference disagrees:

Ritalin should be given cautiously to emotionally unstable patients. Nervousness and insomnia are the most common adverse reactions but are usually controlled by reducing dosage and omitting the drug in the afternoon or evening. Other reactions include hypersensitivity including skin rash, urticaria, fever arthralgia, exfoliative dermatitis, and erythema multiforma with histopathological findings of necrotizing vasculitides, anorexia, nausea, dizziness, palpitations, headache, pulse changes (both up and down), tachycardia, angina, cardiac arrhythmia, abdominal pain, weight loss. During prolonged therapy, insomnia and tachycardia may occur more frequently. Toxic psychosis has been reported.

While many physicians now recognize the dangers in prescribing amphetamines for overweight adults, most continue to use them for hyperactive children. Sometimes a "problem child" will be allowed to return to school only if he or she takes medication. This practice takes place despite the absence of adequate long-term and controlled studies of MBD children.

Those studies which have been done "do not show long-term or lasting improvement in behavior or learning from the use of Ritalin."(8)

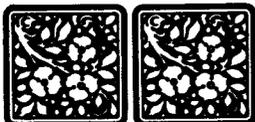
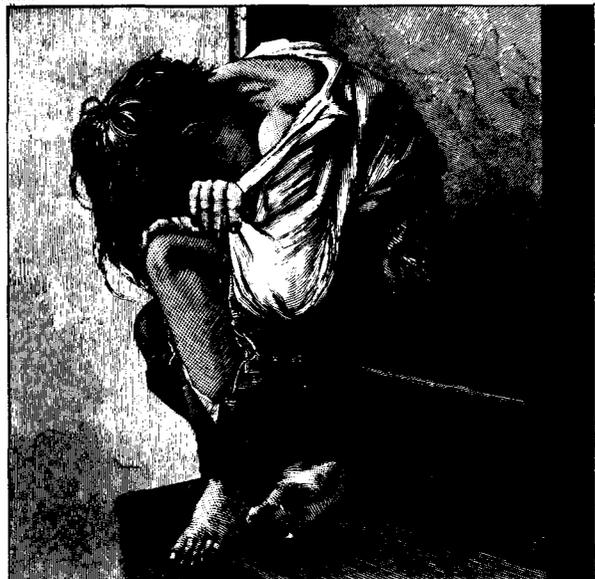
The problem is not merely medical: Who should be responsible for labeling these children? Where in actuality are the diagnoses coming from? Is it right to categorize them at all? Is mischief abnormal? What are the responsibilities of a school system? Are the alternatives to drug therapy being lost in a drug-oriented society? All these questions take us out of the realm of medicine and into the realm of politics. Is the child becoming the scape-goat for the social and psychological ills in certain families and classrooms? Will he or she become obedient and docile in order to escape being drugged? Should they submit to regimentation? Have our tranquilizers dulled our sensitivities so much that we are freaked out by childlike innocence, excitement and curiosity? Is it the aim of our educational system to mass-produce unquestioning, docile, accepting little beings? Have we finally found it necessary to suppress human growth? These, of course, are *not* clinical questions. They are, however, reasonable questions to raise.

The basic problems, as viewed by a group of health professionals, teachers and other concerned citizens from New York City, are: 1) schools which do not meet the needs of children, 2) drug-manufacturing companies

that are too eager to sell their products and 3) doctors who treat all problems with drugs. Most medical groups endorse the use of amphetamines for hyperkinetic children. A notable exception is the American Academy of Pediatrics, which lists three fundamental problems associated with the use of these behavior-modifying drugs 1) no uniform, agreed-upon terminology to describe these disorders; 2) "marked variability in the methodology for evaluation" (there is also no consistent way of determining whether a given treatment is effective) and 3) "the absence of standardized requirements for precise diagnosis and classification of the symptomatology constituting impediments." The use of behavior-modifying drugs suggests to parents and children that there can be a chemical solution to learning, interpersonal and societal problems.

Dr. Ben Feingold of the Dept. of Allergy of the Kaiser-Permanente Medical Center in San Francisco has suggested what seems to be a promising alternative to drug therapy for hyperactive children. Observations have implicated food additives as a partial cause in hyperkinesia. "A federally funded study has confirmed that removing artificial flavors and colors from foods can indeed reduce hyperactivity in susceptible children."(9) A recent double-blind study* also showed positive results. Feingold's special elimination diet excludes all artificial food dyes and flavorings. However, this is an all-or-nothing diet. A child who takes a single bite of an artificially flavored or colored food will trigger a reaction within a few hours that may take several days to subside. That reaction is generally the recurrence of the original hyperactive "behavior." Feingold proposes that a symbol appear on all food and beverage packages to indicate the complete absence of artificial colors and flavors. "A program of strict dietary

*Double-blind study: a study in which an alternative drug (or a placebo, which has no effects at all) is used as well as the drug being studied, and neither the investigator nor the child know which is being taken.



adherence should be rewarding in about 50 percent of the H-LD (hyperkinesis and learning disabilities) children. Once a favorable response is observed, both parents and child become aware that not only the cause for the behavior is known, but that a cure is available, too.”(10)

It is necessary to be aware of alternatives not only in treatment but in attitude. There are many questions not touched on here which may trigger concern in a community. People need to be educated about the problems of diagnosis and treatment of MBD. We also need to look at the relationship between MBD and the values of the American educational system. There are also simple practical considerations for parents who have a child diagnosed as “hyperactive.” Before allowing their children to be drugged, they should consult and question advisors, family workers, psychologists or social workers who may be able to offer alternative solutions.

My feelings on this subject are strong and my intent has been to raise questions, and suggest the need for a reevaluation of the problem. Beyond the technical issues, there is a human concern for every child as an individual.□

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Edited by
The Ann Arbor Science for the People
Editorial Collective*

The idea that human behavior is genetically controlled is called "biological determinism." Throughout history this ideology has been used as a justification for oppression. Women and minorities were claimed to be inferior because of biological differences that could not be changed. There has been a resurgence of this ideology over the last fifteen years, coincidentally at a time when oppressed people are gaining more power.

Two and a half years ago, several members of the Ann Arbor chapter of Science for the People began planning a symposium. The topic was "Biological Determinism: A Critical Appraisal." The intent was to tie together many issues where science was being used as an ideological weapon to maintain the status quo by blaming societal problems on our biological nature.

The symposium was held September 29-October 3, 1975, in Ann Arbor and was a great success. It was followed by a weekend mini-course where several students met to discuss the issues raised at the symposium. The organizers of the symposium decided to communicate their concerns to a wider audience. As a result, tapes from the symposium were made available and were aired over public radio in Ann Arbor and Los Angeles. The group then collected manuscripts from the talks, edited them and added two chapters by members of the Boston chapter of Science for the People. The result was this book "Biology as a Social Weapon."

Ann Arbor StP
Editorial Collective

BIOLOGY AS A SOCIAL WEAPON

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Sociobiology

Sociobiology: A New Biological Determinism, by *Boston StP Sociobiology Study Group*

1977, 154 pages, paperbound, \$5.95.

Available from: Burgess Publishing Company, 7108 Ohms Lane, Minneapolis, Minnesota 55435, the Ann Arbor and Boston Chapters of Science for the People, or ask for it at your local bookstore.

*Douglas Boucher, Kathryn Dewey, Robert Noonan, Steven Risch, Scott Schneider, Jean Stout, and John Vandermeer.

AN OPEN LETTER TO E.O. WILSON

Doris O'Donnell

Dr. E.O. Wilson
Curator
Harvard Museum of Comparative Zoology
Harvard University
Cambridge, Massachusetts

Dear Dr. Wilson:

I am a graduate student in anthropology at New York University. I purchased a copy of your text, *Sociobiology*, because I was anxious to study *Homo sapiens* from the standpoint of so eminent a scientist as yourself.

This is my problem. Although I scored 760 in the verbal portion of the graduate record examination, I cannot seem to get past paragraph four of Chapter 27, "Man: from sociobiology to sociology," (pp. 547-548).

"The reproductive physiology and behavior of *Homo sapiens* have also undergone extraordinary evolution. In particular, the estrus cycle of the female has changed in two ways that affect sexual and social behavior. Menstruation has been intensified. The females of some other primate species experience slight bleeding, but only in women is there a heavy sloughing of the wall of the 'disappointed womb' with consequent heavy bleeding."

Now you must have had good reasons for putting the words "disappointed womb" in quotation marks. Whether or not you personally sympathize with that sulky organ I have no way of knowing. What I *do* know is that you have drawn my attention to the plight of billions upon billions of "disappointed sperm" dying like so many teeny-weensy beached whales on the sands of a bedsheet. Honestly, I couldn't sleep a wink all night for thinking about them.

"The estrus, or period of female 'heat' has been replaced by virtually continuous sexual activity."

Professor, if I were to tell you how little sexual activity has taken place in my life over, say, the past six months you would weep. However, if the department of zoology at Harvard tells me that

continuous sex is the norm for my species, it's going to be that way for me or by God I will know the reason why. Accordingly, I am going to poll a dozen of my prettiest women friends on their sexual activity over the same six month period using the questionnaire method. Sample query: "Do you think you would get more less action if you were in 'heat'?" (It occurs to me that we may wish to bring back estrus.)

"The traits of physical attraction are, moreover, fixed in nature. They include the pubic hair of both sexes and the protuberant breasts and buttocks of women."

Clearly, you as a scholar have been reading *Playboy* magazine for a clue to our culture and have noticed that the air brush has been phased out of the tool kit.

If protuberant breasts and buttocks were fixed in nature as the *sine qua non* of sexual attraction, where does that leave Jacqueline Onassis? Vanessa Redgrave? Jane Fonda? Or, to be brutal about it, Mrs. Nelson Rockefeller?

"The flattened sexual cycle and continuous female attractiveness cement the close marriage bonds that are basic to human social life."

I do not wish to burden you with tiresome statistics relating to the American divorce rate, its underlying causes, and the consequent dire effects on the quality of American family life. My own case is typical:

I divorced my husband after two years of warm, mature heterosexual relations of the deeply meaningful kind that bring much-needed children into the world. I did so because the cement cracked in the socio-economic sphere.

The points which I have raised in this letter may seem trivial to you. I assure you that a textbook bearing the imprimatur of Harvard which substitutes folklore for fact in such a way as to degrade and insult women raises questions which are of paramount concern to me.

Sincerely,
Doris O'Donnell
New York City

A READING LIST ON BIOLOGICAL DETERMINISM

Boston SftP Sociobiology Study Group

1. The Rise of Social Darwinism

R. Hofstadter, *Social Darwinism in American Thought*. Boston: Beacon Press, 1955.

H. Zmarzlik, "Social Darwinism in Germany, Seen as an Historical Problem," Chap. 10 in *Republic to Reich: The Making of the Nazi Revolution*, (ed.) H. Holborn, Vintage Books, 1973, pp. 435-474.

2. The History of "Scientific" Attitudes Toward Sex Differences

J. Conway, "Stereotypes of Femininity in a Theory of Sexual Evolution," in *Victorian Studies*, Sept. 1970, Vol. 14, p. 51.

Elizabeth Fee, "The Sexual Politics of Victorian Social Anthropology," in *Clio's Consciousness: New Perspectives on the History of Women*, (eds.) M. Hartman and L. Banner, 1974.

Eva Figs, *Patriarchal Attitudes*, esp. chap. 6 "Learning to be a Woman."

Havelock Ellis, *Male and Female: A Study of Human Secondary Sexual Characters*.

Herbert Spencer, "On the Comparative Psychology of the Sexes," in *The Study of Sociology*, London, 1973, pp. 373-383.

S. A. Shields, "Functionalism, Darwinism, and the Psychology of Women: A Study in Social Myth," *American Psychologist*, July 1975, pp. 739-754.

3. The History of Scientific Racism

Thomas Gossett, *Race: The History of an Idea in America*. Schocken Books, 1968.

John Haller, *Outcasts from Evolution: Scientific Attitudes of Racial Inferiority, 1859-1900*, Univ. of Illinois Press, 1971.

M. Haller, *Eugenics: Hereditarian Attitudes in American Thought*.

Winthrop Jordan, *White over Black: American Attitudes Toward the Negro 1550-1812*. Penguin Books, 1969.

C. Vann Woodward, *The Strange Case of Jim Crow*. Oxford, 1974.

4. Social Darwinism and American Education

A. Corporate Interests Shape American Education:

M. Curti and R. Nash, *Philanthropy in the Shaping of American Education*.

Clarence Karier, *Shaping the American Educational State: 1900 to the Present*. The Free Press, 1975.

Upton Sinclair, *The Goose Step: A Study of American Education* (1922).

F. Rudolph, *The American College and University*. 1965.

B. 'Intelligence' Testing: the immigration experience; eugenics movement; race and IQ; IQ tests as a means of excluding minorities and the poor from the mainstream:

E.G. Boring, *A History of Experimental Psychology*.

C.C. Brigham, *A Study of American Intelligence* (1924).

N.J. Block and G. Dworkin, *The IQ Controversy*. Random House, 1976.

Leon Kamin, *The Science and Politics of IQ*. 1975.

M. Haller. See above.

C. Karier. See above.

Science for the People. *IQ: Scientific and Social Issues*.

5. Biological Determinism and the Labor Movement

Richard O. Boyer and H.M. Morais, *Labor's Untold Story*. 1955.

S. Feldstein, *The Ordeal of Assimilation: A Documentary History of the White Working Class*, Anchor Books, 1974.

6. Sociobiology: Scientific and Political Issues

The claims of the sociobiologists are summarized in two versions, the first scientific and the second popular mass-media.

E.O. Wilson, *Sociobiology: The New Synthesis*, The Belknap Press, Harvard, 1975. Chapter 27.

Interview with Irven DeVore, "The New Science of Genetic Self-Interest," in *Psychology Today*, Feb. 1977, pp. 42ff.

Critiques of sociobiology on scientific and political grounds include:

Science for the People Sociobiology Study Group. *Sociobiology — A New Biological Determinism*.

J. Alper et al. "The Implications of Sociobiology," *Science* 192:424, (1976)

S.J. Gould, "Biological Potentiality versus Biological Determinism," *Natural History*, May 1976, p. 12.

R.C. Lewontin, "The Fallacy of Biological Determinism," *The Sciences*, March-April 1976, p. 6.

M. Sahlin, *The Use and Abuse of Biology: An Anthropological Critique of Sociobiology*. Univ. of Michigan Press, 1976.

7. Biological Determinism as an Ideological Weapon

Ann Arbor Science for the People Editorial Collective, *Biology as a Social Weapon*, Burgess Publishing Co., Minneapolis, 1977.

WOMEN'S SCIENCE

Hypatia's Sisters: Biographies of Women Scientists — Past & Present, 72 pp. \$2.00 from Feminists Northwest, 5038 Nicklas Pl., NE, Seattle, WA 98105.

This book presents lost/forgotten/neglected history as seen through the lives of a number of women who studied, taught and practiced science, who were discouraged in this endeavor, who faced discrimination. Biographies of 17 women scientists, sketches of 23 others (includes Hypatia, Trotula, Emilie du Chatelet, Ellen Swallow, and others).

Dealing With Experts: The Recombinant DNA Debate

Bob Park & Scott Thacher

Molecular Biology Against the Wall

The proliferation of possibilities in recombinant DNA research has brought new excitement to molecular biology. Besides new vistas in "pure" research, remarkable applications and grim hazards have appeared on the horizon, and previously farfetched scenarios for genetic engineering seem much less distant.* The commercial aspects have aroused the curiosity not only of drug companies but of industry in general. Molecular biologists are invited to give briefings on Wall Street. A skirmish recently broke out in the Commerce Department when an official proposed accelerated patent procedures for recombinant DNA techniques. (So far G.E. holds three patents and both Stanford and University of California have applications pending.)

Simultaneously an unprecedented open debate has mushroomed on the control of this research. Numerous cities and towns, likely future hosts to recombinant DNA research, have joined the debate. For the first time, molecular biology has received local front-page coverage. No longer is the research a matter for "self-regulation" by scientists, through the good offices of the National Institute of Health (NIH) which funds most biomedical research. The issue has been catapulted to top-level policy-making involving the Secretary of Health, Education and Welfare (HEW), the Commissioner of the Food and Drug Administration (FDA), and an interagency task force which has recommended comprehensive legislation. Bills are now being formulated in Congress and in State legislatures.

*Applications include: industrial microorganisms which may transform chemical and pharmaceutical industry, production of biological materials not now available, plant varieties with unique abilities, e.g., nitrogen fixation. Potential hazards include: disease-causing bacteria never before encountered, ecological disruption, and new diseases of genetic regulation, e.g., cancer. For a more detailed discussion of the hazards, precautions, and alleged benefits, see paper entitled "Social and Political Issues in Genetic Engineering," by the Recombinant DNA Group of SftP, available from the SftP office: 897 Main St., Cambridge, MA 02139.

Bob Park and Scott Thacher are members of the Recombinant DNA Group of the Boston chapter of SftP. Bob has worked in clinical trials research in the drug industry and is planning to attend public health school. Scott is a graduate student in biophysics at Harvard, studying membrane biology.

Harvesting the Culture of Elite Science

In recent years most working people have acquired a critical sense of the role of science and technology despite a tradition of science mystification and deference to elite authority. Many now recognize that unemployment, pollution, and disease are another side of the grand hype that science means automatic progress; they see that most of those white-coated experts are owned by business or government. Technology's record has fostered this disillusionment: e.g. PCBs, kepone, SST, Tris, nuclear power, occupational hazards, etc.

And so, in 1974, when molecular biologists themselves called for a moratorium on certain potentially dangerous experiments and asked that scientists discuss among themselves safeguards for this research, the news spread readily far beyond science to a quite interested public. Popular skepticism has been further stimulated by the disagreement increasingly visible among the experts themselves. But perhaps it was the prospect of actually engineering genetics — whether ours, someone else's, or that of plants or microbes — that finally cancelled the blank check of elite science, i.e. knowledge in the service of powerful institutions.

Open Debate on Usually Closed Issues

Debate on recombinant DNA research, both in and out of science, reveals that a Pandora's box has been pried open; social control of science is a live issue. Specific questions arise in three areas — the ostensible benefits, probable uses, and unintentional hazards. But we can go further and ask what underlies the disagreement among experts themselves and then ask how government policy in science could become the province of the people?

One benefit promised from recombinant DNA technology is a breakthrough in world food production using new, specially engineered species of plants, which it is claimed would significantly reduce world hunger. This invites examination of the past effects of the Green Revolution—increased yields from selected hybrid varieties of rice, corn, and wheat. The results have not been to feed the hungry.(1) Predictions of new drug sources and supertherapies for intractable disease demand looking at the economic and social origins of most disease and health problems, questioning medical research priorities in general, and exposing what the high technology, "technical fix" approach to health care means.

While conceivably new therapies will be able to correct some of the non-controversial genetic defects known, there are many other conditions — virtually any characteristic with a claimed genetic predisposition — where the “correction” would amount to a form of genetic repression of individuals by society. Who decides when human variability becomes a genetic “defect”? (2) We need to spell out the implications — present and future — of emphasizing genetic fixes over giving society the treatment: they include declining social services, increasing channelling of individuals (IQ in education, occupational hazard vulnerability in employment), and ultimately suppression of deviance, dissent, unrest, and other “maladaptive” behavior.

While the ultimate uses of recombinant DNA technology are probably the gravest threat, it is on the immediate hazards of doing the research that the technical disagreements among the experts are most apparent.* The debate centers around the adequacy of containment for experimental organisms as well as the pretense that molecular biologists (or anyone else) know enough to guess at the broader ecological or evolutionary threats. How can supposedly objective experts** be in such disagreement? We think perceptions of “objective” reality are dependent on philosophical and ideological premises as well as on other immediate and material factors in people’s lives. A large part of the benefit to risk estimate is speculative and thus is especially open to subjective valuation. For example, how one assesses benefits from recombinant DNA work is contingent on one’s view of the social role of technology; predicting hazards depends on one’s technological optimism.

Another source of subjectivity derives from one’s own contribution to, or interest in, technology. For many in science, the value of their work depends to a considerable extent on how it contributes directly or indirectly to human betterment. In a society where institutions do not operate *a priori* to serve desirable social ends, there is an incentive to believe that better technology tends to shift the outcome in favor of serving those ends, that new knowledge has intrinsic positive value. Consequently, many medical researchers pursue answers to problems for which other solutions, such as changing social conditions, are lacking or are at least beyond their control. Some people, for this reason, may have an unduly optimistic outlook on recombinant

*The concern arises from the use of the bacterium *E. coli* as a host because it is a normal inhabitant of the human G.I. tract (but occasionally causes serious disease). *E. coli* is used because it is the best known bacterium. But hybrid versions, created unknowingly when random samples of foreign DNA are spliced into its chromosome, could create a whole new class of disease-causing organisms.

**Definition of “expert”: a person with extensive personal experience, both in theory and practice, in some area of technical knowledge, not necessarily certified by an academic degree. Being an expert, however, does not mean knowing the “truth” on a technical matter within one’s expertise or better understanding the social implications.

DNA research. Others in science have careers whose success requires the rapid exploitation of scientific discovery. The advantages include publications, appointments, the realization of creative potential, esteem with family and colleagues, recognition by institutions and officials, and ultimately, entry into business and government circles. It is clear that in situations where advances are imminent, the personal benefits and risks of some scientists — as with investors — can very understandably differ from those of most working people.

Popular Critical Awareness on Technical Issues

Because technical issues cannot be resolved by reference to an “objective,” neutral stance, it is especially vital that public policy* in science be determined by a process based on popular awareness, organization, and control. One form this could take would be labor unions with strong member participation and control, with extensive education programs, and with active involvement in defining and enforcing government policy and corporate behavior. Another avenue for popular control of science policy is community-based organizations watching over, for example, the health care system, medical research, and human experimentation.

Even without organization, however, public discussion, debate and criticism can have a major effect on the existing decision-making apparatus, as we are seeing. This process has not been encouraged by most prominent scientists. As Sidney Udenfriend, director of the Roche Institute for Molecular Biology** and member of the NIH advisory committee on recombinant DNA research, explained: “I’m afraid there’s going to be some brush fires if we get communities involved in deciding biohazards. If we permit non-scientists to question our work in one area (DNA), we’ll open ourselves up to all kinds of things....”(3)

How can good judgment on scientific issues be exercised by the “masses”? This, we propose, is analogous to the question: How do top government leaders and policy experts decide questions of science and technology policy? *They rely on experts whom they believe to be credible.* The people, too, should be able to evaluate the credibility of experts. What are these experts’ views on the general role of technology and on specific issues bearing on the people’s interests? How have they contributed to dealing with the real problems of working people, and what are their stakes in these matters? Evaluating experts is an important task for any popular organization. Just as the rulers of the country can pick

*“public policy” — fundamental policies laid down by Congress or Executive branch on which government regulation is based.

**The Roche Institute is the “pure research” arm of Hoffmann-LaRoche, the most lucrative drug company in history, maker of Valium, Librium and others.

and choose between experts and the opinions that they espouse, so can the people.

Of course, the ability of the people to evaluate technical opinion would be considerably enhanced by their having more widespread technical knowledge and scientific understanding. This is a goal which progressive science workers and technical experts should facilitate, in contrast to what happens normally.

The Developing Controversy

In 1971 a scientist objected to a colleague's proposal to insert the virus SV40, which causes tumors in some animals, into the bacterium *E. coli* K12. It was feared the hybrid might escape from the laboratory, survive, and result in a new form of disease. The experiment was abandoned. The subsequent, self-imposed moratorium on certain gene-splicing research was partly intended to show that scientists could look after the danger of their own research. The first large scale discussion by molecular biologists of hazards took place in February, 1975, at Asilomar, Cal., where a rough consensus was obtained on how to deal with the safety question. However, the panel subsequently selected by NIH to write guidelines was made up mostly of scientists already using recombinant DNA techniques or planning to, and some advisors to the panel had direct commercial interests in it.(4) It was a foregone conclusion that

the techniques would be developed and used extensively.

With minimal public participation, the NIH guidelines committee plunged forward (with occasional backsliding), buffeted on all sides by threatened feudal science chiefs. One early draft, available at the traditional Cold Spring Harbor phage* meeting in August, 1975, was sharply attacked by members of Science for the People and others as a retreat from earlier, more strict positions. Meanwhile, the debate went public.

The first large scale public confrontation on recombinant DNA took place at the Univ. of Michigan, Ann Arbor, in early spring of 1976, when the casual intentions of the university trustees to invest in a campus-based recombinant DNA facility were unexpectedly dragged into the spotlight. The issue was raised by faculty member Susan Wright, with several other faculty and Ann Arbor SftP members joining in. It generated escalating interest on campus and within the surrounding community to such an extent that the university's Research Policies Committee felt compelled to arrange a full-dress forum, inviting a wide spectrum of experts from all over the country. It lasted two days and attracted a continuous attendance of over 600 people.

The outcome was that the two appropriate faculty

*Phage: a virus that lives in bacterial hosts, studied because of its relative simplicity.

These comments were written by Sheldon Krimsky, who was a member of Cambridge Experimentation Review Board (CERB).

As a result of the Cambridge experience we have a singularly important counter-example for those skeptics who would not believe that a group of citizens could grasp the issues of a technically complex debate, carry through an intense investigation of the issues and arrive at a decision that was sensible and thoughtful.

Basic science has just witnessed the end of its age of innocence. The events in Cambridge tell us that citizens are no longer willing to place their blind faith in research scientists who, in their eagerness to extend the boundaries of human knowledge, employ invasive technologies that have the capacity to alter significantly the world they wish to investigate. It is evident from CERB's recommendations that citizens recognized that academic science has become an industry. Researchers and their institutions compete for ever more scarce federal dollars.

CERB was sensitive to the fact that many of the claims scientists made about the risk-free nature of the research did not rest on hard empirical data. Proponents appealed to *a priori* assumptions, argued from analogy, deduced particular statements from evolutionary theory and made extravagant extrapolations from a narrow data base. It was the feeling of some board members that tests carried out under ideal conditions need not bear out under actual experimental conditions.

The main emphasis of the NIH guidelines was on the short-term risks of spreading biological agents. CERB recognized the potential of releasing hazardous agents with long latency periods. The board recommended a national registry of those who are engaged in recombinant DNA research so as to make long-term epidemiological studies possible.

More than anything else, the report of the Cambridge Experimentation Review Board is a statement against elitism and self-regulation in one of the most carefully protected areas of scientific research. The following admonition was issued by CERB in its final report:

"Throughout our inquiry we recognized that the controversy over recombinant DNA research involves profound philosophical issues that extend beyond the scope of our charge. The social and ethical implications of genetic research must receive the broadest possible dialogue in our society. That dialogue should address the issue of whether all knowledge is worth pursuing . . . Knowledge, whether for its own sake or for its potential benefits to humankind, cannot serve as a justification for introducing risks to the public unless an informed citizenry is willing to accept those risks. Decisions regarding the appropriate course between risks and benefits of potentially hazardous scientific inquiry must not be adjudicated within the inner circles of the scientific establishment."

committees gave near unanimous approval to proceed with the research, subject to the awaited NIH guidelines. However, far more significant was the effect of the debate locally in revealing the full depth of the criticism of the research, and nationally, in providing a stunning precedent for the growth of the controversy into a movement for popular control of science.

The Cambridge Experimentation Review Board

Just as final NIH Guidelines were about to be issued in June, 1976, Harvard University's plans to build a P3* facility came to light. Aware of Harvard's intentions, an interested City Councillor, Barbara Ackerman, attended a low-key "public" meeting called by Harvard's Committee on Research Policy to discuss the P3 plans. Simultaneously, the facility was announced in the lead article of a local alternative newspaper and immediately hazardous research in Cambridge became a burning issue, fanned by some local politicians running hard to catch up. They included Mayor Al Velluci who gained national attention for his efforts.** Thus recombinant DNA research became the focus of lengthy City Council meetings at which numerous opposing presentations were given and to which hundreds of people came, not all of them academically affiliated. An unprecedented 6-month moratorium on P3 and P4 recombinant research resulted, an act heard 'round the world, and equally startling, a citizens' review committee made up of non-experts was created to advise on the research hazard.

The experience of the Cambridge Experimentation Review Board (CERB) warrants close inspection as an example of public participation in making science policy. CERB, at the City Council's direction, was selected by the City Manager and consisted of people with neither personal interest in recombinant DNA research nor related professional interests, as with research scientists. Board members — all Cambridge residents, with an equal number of men and women — included a nurse, a social worker, two physicians, a businessman, a saleswoman, a university faculty member, a homemaker and an engineer. Taking its narrow assignment of dealing only with the immediate public health-safety issues, CERB met in both open and closed sessions biweekly

*P3: the second highest level of laboratory "containment," ranging P1-P4, for keeping experimental organisms isolated and preventing their escape into the real world, from which they could never be recalled.

**The response of the politicians reflects more than just awareness within their constituencies of recombinant DNA issues. Cambridge has long been dominated by the imperial giants of Harvard and MIT, usually with cooperation from most city politicians, with effects which have included the removal of most of Cambridge's industrial employment and the constant encroachment on traditional working class neighborhoods by university expansion and housing for students, faculty, and the technological elite. In the 60's and early 70's, extensive industrial properties were bought up by the MIT-government-aero-



for over 4 months and heard 75 hours of testimony ranging from NIH dignitaries and renowned advocates of the research to lab technicians and members of Science for the People. The board's final position allowed the research to proceed but with significantly stricter requirements than NIH. These included strengthening institutional biohazards committees, monitoring escape of vectors,* conducting local epidemiological studies, and setting up a city-wide biohazards committee. In addition, CERB recommended that the federal government extend the NIH Guidelines to cover industry, maintain a registry of workers in recombinant DNA labs, and fund health monitoring. CERB rejected assurances from Harvard and NIH scientists that the volun-

space team to be transformed into an electronics, computers, and weapons research center. (Technology Square, for example, is a former site of numerous manufacturing plants.) The details of this process are contained in *Harvard, Urban Imperialist*, 1969, published by the Anti-expansion, Anti-ROTC committee at Harvard. The rent control law, finally passed in the late 60's with little help from most politicians, was a significant victory reflecting the widespread anger of the people against institutions like Harvard and MIT. The recombinant DNA issue was for the people of Cambridge but another example of imperial decision-making, and many politicians could not afford to let it pass.

*Vectors: organisms containing, in this case, hybrid DNA.

tary NIH Guidelines were a more-than-adequate protection against exceedingly improbable or inconceivable events. The CERB deliberations led to a city ordinance incorporating their recommendations and were in part responsible for the near-passing of another law banning P3 and P4 research indefinitely (defeated 6:5).

CERB's most important contribution was to show that non-experts could judge experts and make creditable public policy judgements.

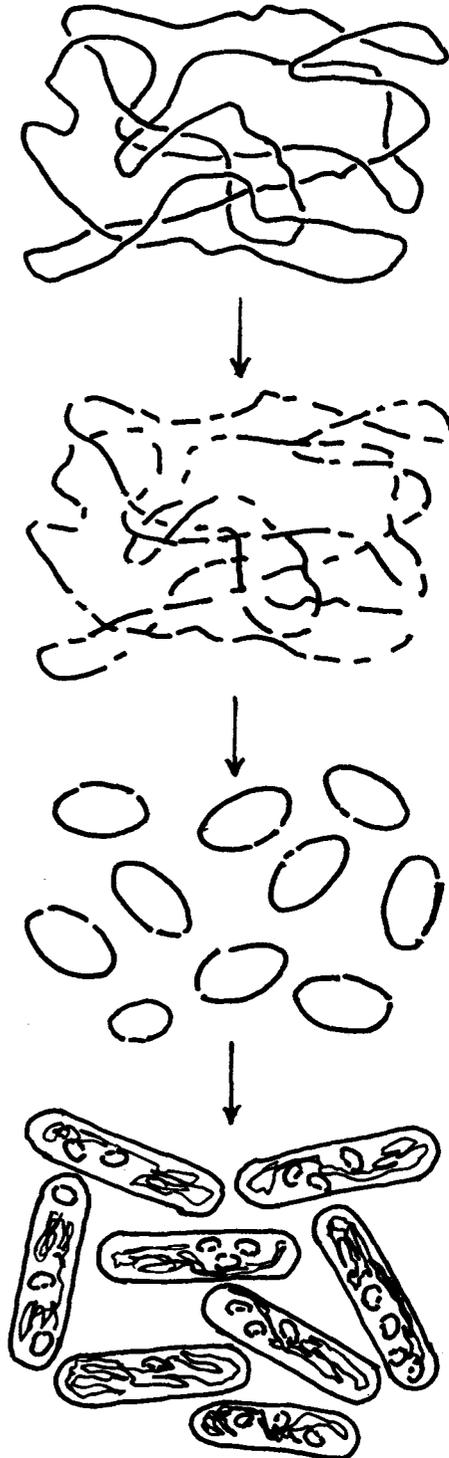
The CERB report (5) revealed that public policy issues were not allowed to be obscured by the technical debates. This critical evaluation of the claims being made by experts is in sharp contrast to how the Science Court would function, as it has been proposed.*(6)

There were deficiencies in the CERB conclusions, but first let's examine how CERB was able to do what it did. CERB avoided becoming beholden to Harvard, MIT, or the science establishment in part because of the selection process that formed the board, but also because the development of an authority structure or hierarchy was minimized. For example, the original chairperson, who was also Acting Commissioner of Health and Hospitals in Cambridge, removed himself as a voting member on grounds of possible conflict of interest. In addition, all members were encouraged to take part in defining unresolved issues.(5) Finally, at least some members of the committee had a clear perception of political power and the people's interests, as well as an active commitment to working for those interests.

It is evident that the selection procedure which formed CERB cannot be counted on routinely in selecting citizens' boards since the success of this procedure depends on the orientation of the executive officers of, in this case, a municipal government. But even randomly selected committees of interested working people will not escape the problems of elitism, professionalism, and science mystification that affect all of us in contemporary society, unless some members have had experience in combatting this ideology.

The shortcomings of the CERB report reflect conditions which no citizens' committee could have easily overcome. It is unlikely that any representative committee (feeling the immense weight of world attention on its actions) could have strayed very far from the middle of the road in the absence of a visible migration of popular opinion on the issues. While there is considerable consciousness of the hazards possible in recombinant DNA research, very little organization or examination of the issues in political terms has developed on a mass scale. Thus it would be bizarre indeed if the committee had, at

its own initiative, broadened the scope of its enquiry and pursued in depth questions we believe to be central: the likely specific uses of genetic engineering in *class* terms; the ecological or evolutionary dangers (in terms of infectious disease, soil ecology, and other specific areas); and benefits and risks in broad social terms — who really stands to gain, what are the indirect costs, who is at risk, and what alternatives are being ignored?



*In the science court concept for resolving disagreements among experts, as originally proposed by A. Kantrowitz, chairman of AVCO Everett Research Laboratory, a panel of scientific experts chosen in the usual manner of elite boards, would cross-examine technical claimants on the "facts," never venturing to examine broader questions of why who might believe what, and of course never similarly exposing themselves.

Actually, many Cambridge residents were suspicious and concerned over the proposed research at Harvard, according to two City Councillors. An outright ban on the research was favored by some. Had this awareness been better articulated and publicized, perhaps CERB would have taken a stronger stand. The progressive forces in the Cambridge debate could have been very effective in assisting communication between CERB and Cambridge residents.

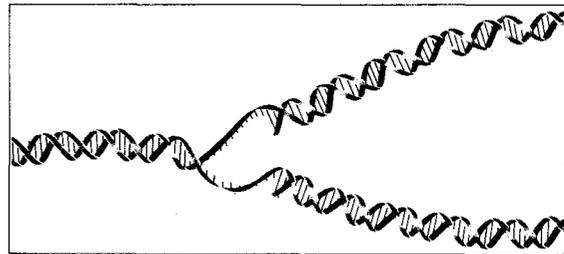
A major factor in CERB taking a critical approach, aside from the nature of the committee itself, was pressure from a significant opposition minority within the local science "community" and the radical microcosm within Cambridge, both challenging the NIH/Harvard/MIT front. The availability of opposing experts — including technicians — allowed the committee to perceive the political nature of the debate on recombinant DNA research.

There are therefore two main lessons from CERB: 1) With some essential but rarely achievable prerequisites, a citizens' committee can acquire substantial critical expertise free of direct control by nearby institutions and can to some extent reject dominant and respected views. 2) Without a developed progressive movement concretely involved in similar or related issues locally, there are severe limitations to what even a well-selected citizen committee can do in forging an advanced position. This of course confirms the basic strategy of relying on "mass work" — going to, and being part of, the general populace rather than concentrating on influencing law makers, policy-level scientists, or other persons in high places.

A National Forum

Since the Ann Arbor and Cambridge excitement, there have been many smaller replications of the same debate(7). In March, the National Academy of Sciences sponsored a forum to end all forums on recombinant DNA, in Washington, DC. The NAS, the most select organization of elite science,(8) was probably concerned at the course the debate was taking and wished to present a moderate appraisal, especially for congressional staffers and the press. The panel of speakers was relatively balanced; the workshops were dominated by pro-recombinant forces, but the agenda was improved by the heavy turnout of counter-forces: members of the Peoples' Business Commission (formerly Peoples' Bicentennial), the Environmental Defense Fund, and the Coalition for Responsible Genetics Research. The only person at the NAS forum speaking for organized workers was an official of the Oil, Chemical, and Atomic Workers union, who pointed out that the NIH guidelines were ludicrous as far as protecting workers in industry is concerned.

Several developments were apparent. One was recognition of the extent of commercial inroads into recombinant DNA technology: a number of people argued that this technology, based on publicly funded research, should not be exploitable for profit. Another was the isolation of the most self-righteous and adamant proponents of the research from even mainstream, establishment scientists (who were a little embarrassed by this group). By then, in fact, the tide had already started to turn, and forces were being redeployed to the legislative field.



Legislative Shelter in a Storm

Some academic scientists and drug companies who previously had vigorously opposed legal controls on recombinant DNA research emerged in favor of national legislation at the NAS forum. Their position changed because they sought future protection from actions such as occurred in Ann Arbor and Cambridge. Many other people saw the legislation as necessary to cover industrial applications of recombinant DNA technology since the NIH guidelines applied only to government-funded research. As a result, California and New York are both considering legislation to cover the work. Two bills pending in Congress would essentially write the NIH guidelines into law with stiff penalties to enforce them.

The right of local communities to enact their own ordinances is an important issue. But the recent inter-agency report from the federal government emphasizes that national regulations must pre-empt local or state ones, and many scientists and pharmaceutical firms see this as the main value of the legislation.(9) The bill before the U.S. Senate, sponsored by Edward Kennedy (D., Mass.), gives local communities a real option to enact more strict legislation. Even Joseph Califano, Secretary of HEW, has felt the need to state publicly that he supports a local option.

While federal legislation will clearly give scientists the protection and sanction they need for recombinant DNA work, many are very resentful of the government's interference in their affairs. Philip Handler, president of the National Academy of Sciences, raises the spectre of "constraints that will swathe the research with bureaucratic complexities... and generally frustrate a career in research. If (regulation is) pursued yet further, science could be shattered."(10) A majority of the molecular biologists attending a Gordon Conference in

NATIONAL COALITION FOR RESPONSIBLE GENETIC RESEARCH FORMED

Last summer a group of scientists and environmentalists, including members of Science for the People and Friends of the Earth, met to discuss joint action over the proliferation of unregulated gene transplantation/recombinant DNA activities. A position paper was drafted calling for much broader public participation and broader policy formulation. The group called for a moratorium in gene splicing activity until such public inquiry could take place. Over the next six months, Francine Simring of Friends of the Earth coordinated the collecting of signatures on the position paper. On March 7, coinciding with the National Academy of Sciences Forum on Recombinant DNA, a press conference was held in Washington, D.C., announcing the formation of the Coalition for Responsible Genetics Research. The number of individual and group members at that time was over 500. The Coalition, with financial support through Friends of the Earth and the Sierra Club, has maintained a lobbyist in Washington, Pamela Lippe.

The Coalition is now in the process of organizing a formal steering committee to make decisions and be held accountable for them. At present the struggle for progressive legislation requires coordinated effort in different parts of the country. Among the activities of the Coalition have been: 1) serving as a clearinghouse and information exchange on genetic engineering, 2) maintaining a presence in Washington to follow

executive or legislative action in this area, 3) pushing for risk assessment programs, and health monitoring of lab workers, 4) aiding isolated groups of community or laboratory people who are trying to have input into decisions affecting them, and 5) trying to make contact with broader sectors of the biological and medical communities.

We encourage members of Science for the People to join the coalition by signing the position statement and sending it to: Coalition for Responsible Genetic Research, 72 Jane Street, New York City, N.Y. 10014.

In Massachusetts, the Amherst and Boston Recombinant DNA Groups, Mass COSH, and the Harvard Biohazard Action Group have joined forces to organize a Massachusetts chapter of the Coalition. The first activities will be to contact local unions representing lab and hospital workers with respect to their ensuring representatives on Biohazards Committees, contacting the Mass. Dept. of Health, and making sure local Biohazard Committees function in an effective and accountable manner. Local inquiries should be made to the Boston SftP office, 897 Main St., Cambridge, MA 02139.

Eventually, the Coalition will probably develop into a Coalition for Responsible Research, which can take up broader issues related to the direction and character of scientific research, and be a positive force for progressive scientific work.

—Jonathan King

June of this year were greatly aroused by the possibilities of arbitrary government interference in their affairs and stated publicly that earlier warnings by them and others concerning hazards had been exaggerated.(11) Nevertheless representatives of the Pharmaceutical Manufacturers Association concede that dealing with federal inspectors will be nothing new to them. Politically aware scientists at the NAS forum felt similarly. Donald Kennedy, newly appointed commissioner of the FDA and a former Stanford biology professor, went further and said, "Why should there be more regulation? The simple answer, I think, is because it is politically inevitable.... How much regulation are we going to have? Answer: As much as people insist on, in light of their own social value calculus." Biologist Clifford Grobstein, prominent in the debate in California, noted many at the NAS meeting who felt that "science has become too consequential to be left to the self-regulation of scientists or to be allowed to wear a veil of political chastity."(12)

Still Congress may give power to regulate the research to the same agencies — HEW and NIH — that provide most of the funding for the research. The "Recombinant DNA Research Act of 1977," introduced by Carl Rogers (D., Fla.) of the House Committee on Science and Technology, gives the Secretary of HEW full power to make regulations for the research and to lic-

ense those who undertake it. Just as the Atomic Energy Commission was unable to both promote and regulate nuclear technology, so too, HEW, which runs the NIH, will have a conflict of interest.

The proposed federal regulations may frighten scientists, but it is doubtful they will eventually stymie research. Federal inspectors, according to Kennedy's bill, could examine any laboratory materials and could destroy or confiscate suspected dangerous recombinant organisms as well as recommend heavy daily fines, but enforcement would remain difficult. Inspectors would be hard pressed to see through the mass of laboratory paraphernalia in order to use their power meaningfully. As an alternative, Rogers' bill calls for local biohazards committees to be given the prime responsibility for enforcing the regulations, rather than federal inspectors. Such committees would have one third of their members from outside the regulated research institution and might possibly be more responsive to community concerns than a powerful federal bureaucracy.

Will federal legislation make the NIH guidelines more effective? The guidelines ask biologists to understand and follow relatively strict microbiological techniques which few have been trained in. Molecular biologists, especially, are used to treating the bacteria they study as harmless. Thus the guidelines are certain to suffer from much day-to-day negligence, especially from



"We want you to do some pure disinterested fundamental research into something immensely profitable."

workers who are convinced there is no clear and present danger. (13) In one typical laboratory, the guidelines reportedly are often ignored. (14) Both congressional bills ask that employees who raise questions about safety be protected from loss of their jobs, but such a provision would be hard to maintain without strong local unions and safety committees.

The federal government is also trying to limit the liability of institutions doing the research. One bill, Rep. Ottinger's H.R. 3191, no longer under consideration by Congress, made it clear that institutions would be liable for an accident whether or not they had violated regulations. The federal task force on recombinant DNA research, however, concluded that if liability were unlimited, then the work might not proceed due to the costs of insurance. Already one contractor, Litton Industries, has bowed out of a government contract involving a high-containment P4 facility in Frederickburg, Maryland, claiming it cannot get liability insurance. (15) Limiting liability would require legislation similar to the Price-Anderson Act which placed a ceiling on the liability of a power company for a nuclear power accident. Although the act was ruled unconstitutional recently in a federal court, similar provisions might still be written in the case of recombinant DNA research. At the moment, Kennedy's bill states that federal legislation shall not limit a citizen's right to sue over an accident.

Conclusion

Whether or not strong, meaningful laws are passed, requiring the slow, careful development of recombinant DNA technology — and whether they are enforced — depends on the critical consciousness of the people. The task of progressive science workers is to facilitate this

process. Furthermore this objective makes sense only if it is broadened to include all interrelated areas, e.g., medical research priorities, occupational and environmental health, and genetic engineering uses. So too, the value of citizens' committees depends on informed popular opinion and agitation. Conceivably, legitimate citizens' committees could be arranged by coalitions of organizations in communities, independent of government, to help clarify technical disputes.

Evaluating experts is a political process. However, there is obviously no guarantee that politically progressive and responsible experts will necessarily have more reliable technical opinions and interpretations of fact. Ideally then, experts should be experienced in collectively defining positions and principles — participating with other, non-expert, working people. In this way the technical discipline and political sensitivities of experts will grow in good directions, along with everyone else's. Organizations are therefore needed in which both experts and non-experts can collaborate in non-elitist and anti-sexist practice toward progressive goals.

When working people begin to routinely and systematically evaluate the credibility of experts, the face of technology will change: governments and business will be less free to design our future against our interest. □

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A Review of *Man & Woman, Boy & Girl*

by John Money and Anke Ehrhardt (Baltimore: The Johns Hopkins University Press), 1972.
Reviewed by Kathy Grady.

The question of what makes a woman or a man is not an easy one. Ridiculous, you might say. One can always tell who are the women and who are the men. Well, almost always. It's hard with babies. And with people bundled up in winter clothes. Long hair can be confusing until you see whether the person has a beard (which simplifies the decision a great deal). Forest Hills officials certainly had their problems with the question.

Well, who cares? People are people. We could group people in lots of ways: left-handed/right-handed, employed/unemployed, sinful/pure, revolutionary/counter-revolutionary. Why male/female? When you push people to the wall on this question, you usually get an answer that relates to sexual behavior, more specifically heterosexual behavior. It is extraordinarily common to refer all questions about sex discrimination back to the anatomical differences in reproductive function. At the root of such responses is some version of evolutionary necessity, survival of the species and all that. Thus, the argument goes, this system of categorizing people is fundamentally *natural* and uniquely biologically based.

It is at this point that science is invoked to provide supporting evidence. The supporters of the status

Kathy Grady is a feminist social psychologist interested in the historical and current uses of science and "scientific findings" in the oppression of women. Her own work is on the cognitive and motivational effects of sexism.

quo have spent at least the last 100 years searching for scientific evidence that would justify the political inequality between the sexes and enforce heterosexuality within that system. Hypotheses about sex differences began with what appeared to be obvious differences in the reproductive organs and quickly moved on to the brain, the nervous system and other physical characteristics, and finally extended to personality or temperament differences and ended with the grand conclusion of resultant social inequalities. Throughout the research and discussion there have been continuing difficulties distinguishing what is, what must be, and what should be.

In *Man & Woman, Boy & Girl*, Money and Ehrhardt provide a detailed review of their own work at Johns Hopkins and some of the work of other medical and behavioral scientists concerned with those seemingly obvious differences that are the starting place for all other speculation. The book provides a step by step description of the process of gender determination, that is, how one gets to be a male or female. The authors lay out the roles of chromosomes, gonads, hormones, and genitalia in painstaking detail. They describe the average course of development in animals and humans and all the deviations from that average: missing or extra chromosomes, missing or malfunctioning gonads, and various distributions of some hormones.

Even at this level, categorizing or "becoming" a male or female is a tricky business. One cannot simply say, for example, that males have

XY chromosomes and females XX because there are some people who have what is called a "mosaic variation" like X/XY or XX/XY who may "become" *either* male or female. On the hormonal level, since most people have some of every kind of hormone, one can only talk about the relative proportions of certain hormones. In practical terms, initial determination of the sex of a newborn depends on the appearance of the genitalia. Overall, Money and Ehrhardt classify not the usual two but four basic gender categories: male, female, ambiguous, or incongruous.

In sum, the startling conclusion is that there does not exist *one* clear-cut way to differentiate only two sexes. Using these basic criteria there are always some number of "left-overs," some anomalous or ambiguous cases whose classification presents problems. No matter how small one estimates this number of people to be, it is clear that in everyday life no categories are provided for them. At some point the individual is "assigned" and occasionally "re-assigned" to one of the two categories male and female, categories which I would argue are more social than biological.

The case histories of individuals with ambiguous or incongruous genitalia provide some of the most interesting reading in the book. The evidence indicates that individuals with the same anatomical characteristics but opposite sex assignment adopt sex roles to match their assignment. In fact, the authors indicate that after about 18 months of age, it is easier to make the physical

characteristics match the sex assignment through surgery and or hormone therapy than to try to change the sex-role learning to match the physical characteristics.

One case history which gives stunning evidence for sex-role learning concerns identical twin boys. At 17 months one of the twins had his penis destroyed while being circumcised by cauterization. After much agony, the parents and physicians decided on sex reassignment. Now there are two interesting points to the rest of this story. The first is how technically *easy* that reassignment was. It required changing the child's name and clothing. Period. When the child reaches adolescence, she will begin hormone therapy to develop female secondary sex characteristics and at full growth cosmetic surgery will be performed on her genitalia. The second interesting part is the behavioral differences between the twins reported by the parents. By age 4, the twins had different interests, different career plans, and even different personal hygiene according to their mother: "She likes for me to wipe her face. She doesn't like to be dirty, and yet my son is quite different. I can't wash his face for anything.... She seems to be daintier. Maybe it's because I encourage it." (p. 119).

With all this fascinating evidence for socialization one might well be tempted to assume that Money and Ehrhardt support a cultural interpretation of sex differences. They do not. In fact, they warn "advocates of women's liberation" not to ignore the evidence presented in Chapter 6. This evidence therefore and its interpretation require careful scrutiny.

Chapter 6 is entitled "Fetal Hormones and the Brain: Human Clinical Syndromes." As the authors state their task, it is "to see if prenatal androgens may have left a presumptive effect on the brain, and hence on subsequent behavior" (p. 98). It is noteworthy that all data reported is from females although it is



mentioned that each of the clinical syndromes also produced children identified and reared as males. One should also note that the "behavior" or "behavioral signs" are not controlled observations of behavior but *reports* by the subjects and their mothers of behavior, feelings, fantasies, and preferences, sometimes years later. Of course, these subjects and their mothers both know perfectly well that there was a problem concerning an excess of androgen, popularly known as the "male sex hormone." All of these problems in method raise substantial questions about what conclusions, if any, may be drawn from these data. Nonetheless, we shall press on.

The first study reported compares females with three different kinds of androgen exposure: (1) those who were inadvertently exposed to androgen pre-natally but not post-natally (progesterin-induced hermaphroditism); those who because of a defect of function of the adrenal glands were exposed to unusually high amounts of androgen pre- and post-natally (androgenital syndrome); and (3) normals. What captures

one's attention, however, are not these categories but the kind of behavioral reports chosen for examination, "tomboyism." "Tomboyism," according to the authors, involves energy expenditure, athletic skills, disinterest in clothing and adornment, preferences for boy playmates, cars and guns to "rehearsal of maternalism," and a priority of career over marriage. Clearly these measures are the most obvious elements of a feminine stereotype. One wonders, however, where the authors came up with a "behavioral sign" (for tomboys) like "their cosmetic of choice is perfume" (p. 10). Since the content of stereotypes can vary from culture to culture, one is left wondering how these specific features of the feminine stereotype could possibly be hormonally determined.

Despite these conceptual and methodological problems, the authors seem to conclude that the "presumptive effect on the brain" of surplus androgen for women is that their behavior is less "feminine." This conclusion receives further support in a rather surprising way. "Turner girls," who have no gon-

adal hormones whatsoever, turn out to be even more "feminine" than normal controls. The authors' overall conclusion is that "a feminine gender identity can differentiate very effectively without any help from prenatal gonadal hormones that might influence the brain and perhaps, in fact, all the more effectively in their absence" (p. 108).

Now what do we do with that information? Well, it might be that "femininity" does not require a hormonal assist but "masculinity" does. If this is, in fact, the argument, then it would seem all the more critical to have data from individuals with these various syndromes who were reared as males. The only clue offered in this regard is the behavior of individuals with androgen-insensitivity syndrome, that is, an inability of their bodies to absorb and use any available androgen. Reared as females, these individuals appear to develop completely stereotyped feminine interests and fantasies despite the fact that they are genetic males. This result fits in with those already mentioned. Those reared as males are more to the point for the hypothesis, however. The authors are considerably more vague about these males, but they do state that "in this case, the boy differentiates a male gender identity" (p. 113). Although there is then mention of an "impairment to his masculinity" specifically in terms of erotic arousal and functioning, this particular impairment seems predictable enough from his lack of a functional penis. Since he has differentiated a "male gender identity" one would assume that most of his "behavioral signs" are stereotypically masculine.

In a nutshell then, this is the evidence from the famous Chapter 6. It is referred to in the very next chapter as showing "conclusively" the relationship of hormones to behavior. What it seems to show is that "femininity" occurs in the absence of any hormones, that "masculinity" may be fostered in females by the presence of androgen, but that a

"male gender identity" can occur in males in the absence of androgen. It seems to me that other than showing anything conclusively the quality of evidence is so poor at this point that no conclusions are yet warranted about the relationship of androgens to sex-role behavior.

In contrast, the evidence for the effects of simple sex assignment are startling and clear. Whichever sex one is reared to believe one is, more or less stereotypic sex-role behavior will be learned and reported whenever a researcher cares to ask. Money and Ehrhardt take the respectable position that both heredity and environment are important in the development of sex-role behavior, but the impact of the book is to lend dramatic support for a cultural interpretation. Nonetheless, one should not forget that this support is not the authors' intention, and that they do not interpret these data in this way.

One other word about the authors' ideological orientation. The treatment of homosexuality throughout the book is conceptually muddled but clear in two respects: its male orientation and value judgment. In general they use the term "homosexual" (incorrectly) to refer only to males; the impression is that male homosexuality is a "problem" of over-riding concern. The value judgment is that homosexuality and bisexuality are "psychosexual pathology" and "psychosexual malfunction." In addition, there are lots of poetic references to "falling in love," as in falling in love "in agreement with" one's gender identity, i.e., heterosexually, and ominous statements about the possibilities of "rehabilitation" for those who don't.

Some say this book is too technical for the average reader, a view fostered by Money himself when he came out with a popularized version, *Sexual Signatures* with Patricia Tucker (Little, Brown, & Co., 1975). It is true that there is a superabundance of technical terms, names for

hormones and so on, and that much of the writing is pompous and antiquated using words like "erstwhile" and "potentiality" and phrases like "nosological convention." But the intelligent reader can treat the whole thing like a game if one reads with care and keeps a few things in mind. (1) Do not be lulled into inattention by the jargon. Often the key word to understanding the point is in English. (2) Stop and ask yourself, "How do they know this? What did they measure?" (3) Then ask yourself, "Does this make any sense?" The effort is worth it because you can uncover some absolute gems of examples that are abbreviated in *Sexual Signatures*, and of course, you get the pictures and the ability to follow up to some extent with the references. The book is recommended (for borrowing) for those with a lot of patience, a strong stomach, and a firm commitment to the sex-role revolution. □

SANTA CRUZ CHAPTER REPORT

The chapter in Santa Cruz is growing solidly. There are now 15 of us meeting regularly. Many of us are associated with the university, but several community members not directly working in science fields are also active. Activities include: 1) A community class dealing with social and political aspects of genetic research. This was a successful class with about 20 participants. We researched and discussed I.Q. and race, the yy controversy, cloning, recombinant DNA, and other such topics. Out of these class meetings came 5 people who worked collectively to write popular, understandable articles about these issues which we are now trying to get published in a local newspaper (see enclosed copies). 2) A study group which meets every week to read and discuss topics related to science and/or politics. About 10 people attend regularly, and the level of discussion and teaching-learning which goes on is very high. 3) A media group which is exploring various ways to more widely publicize science and politics to the community. This group is exploring the possibility of radio slots, regular columns in newspapers, etc.

capitalism to the basic economic problem, and so counters the lies that drive the people to the right. Feminists should tell the people why women's oppression has been so profitable, environmentalists, how capitalism molded production to its present environment-destroying form, and all groups must educate as to the true causes of unemployment, or it will be blamed on them.

To integrate all the isms and sum up, this debate began by asking which is more furthered by genetic theories, racism or sexism. Then we moved to considering which bolsters capitalism more, and I said racism because it has contributed the main rationale for the current world-scale economic class division. Then I said that the problem of this worsening class division (93% of the capitalist world disowned from means of

production) was the overriding problem of our time. When, in this letter, I linked the Women's Movement to Environmentalism. It was to try to show a developing pattern within two subsidiary struggles within the basic economic class struggle, due to a separatist approach.

Calling a problem subsidiary is not to denigrate or diminish it; it's to point the way to where to attack. Nothing can diminish the historical importance of the Women's Movement or the enormity of women's history-long oppression. But it is an *economic* system that is right now disintegrating, and unless feminism embodies an *economic* program for getting foods produced and distributed in a more just way than socialism, then the struggle for socialism remains the most important cause of our time, to which all other causes must consciously relate.

Lorraine Roth
Cambridge, Mass.

THE JOINT INTERNATIONAL SCIENCE TEACHERS CONFERENCE

is being held in Winnipeg, Oct. 20-22, 1977. Featured speakers are Hans Selye, George Wald, J. Allen Hynck and Barry Commoner. If any readers of *SftP* are planning to attend, some staff and students from Argyle Alternative High School would be interested in meeting with them. We have been working on issues related to sexism, labour unions and the right to strike, environmental issues and energy issues (particularly nuclear).

Please contact (hopefully before the conference) Ray Johnstone, c/o Argyle Alternative High, 30 Argyle St., Winnipeg, Manitoba, Canada R3B 0H4. Phone (204) 942-8089 (days), (204) 453-7310 (evenings).

SCIENCE FOR THE PEOPLE: the magazine

SftP is published bimonthly and is intended not only for members, but also for a broad readership within the technical strata and for all others interested in a progressive-radical view on science and technology. The goals of *SftP* are to elucidate the role of science and technology in society, to enrich the political consciousness of readers, and to stimulate participation in concrete political activities.

The subscriber circulation of *SftP* is about 1,500, the total circulation about 4,000. The content of *SftP* derives largely from the experiences and interests of people who read the magazine. In seeking to "rely on the people", we urge everyone both to contribute to the magazine themselves and to encourage others to do the same. We are particularly interested in having articles written, discussed, or at least reviewed, collectively, when circumstances permit.

1. **Operations:** *SftP* is published through the activities of the Editorial, Production and Distribution Committees under the direction of the Magazine Coordinating Committee (whose members are drawn from the other committees). All committee members (part-time, unpaid and serving 6-12 months) and the Magazine Coordinator (part-time, paid) are from the Boston area except for some members of the Editorial Committee who are from other cities. All committees are accountable to the general membership by way of 1) the annual Northeast Regional Conference (the most regular and widely attended conference of *SftP*) which reviews the magazine and makes general policy, 2) the different chapters of the Northeast Region through the Northeast Regional Coordinating Committee, and 3) local chapters through selection, review and direction of their participants on the Editorial Committee. Nationwide representation on the Editorial Committee by active *SftP* members is encouraged.

2. **Material for Publications:** To be in accord with established guidelines, material for publication 1) should deal with issues of science and technology, from a radical perspective, 2) should raise the political awareness and involvement of the general readership, and 3) should stimulate activities of individual persons and groups and the formation of chapters, but should not generally have the character of an "organizing manual."

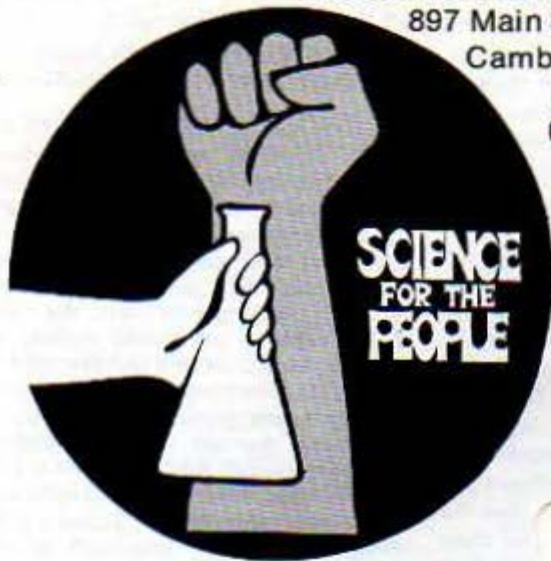
3. **Kinds of Contributions: Articles.** Good articles can evolve from our work and from community-based or other, political, investigation and activity. Topics may reflect research, teaching or other interests, and can take the form of book reviews, reports of events, or analytical articles. Writing done for another purpose often can be adapted for *SftP*, and is welcome.

Procedure: 1) articles written for another purpose and roughly conforming to above guidelines: submit 3 copies along with a letter describing the article's origin, how it might be adapted, and whether the author(s) are willing to do so. 2) new articles: if convenient, send an outline of a proposed article so that the Editorial Committee can point out possible conflict with the guidelines and make suggestions concerning content, resource material, emphasis and magazine context. In this way, some assurance can be given that an article will be used. Writing articles collectively is encouraged. Submit articles in 3 copies. In attempting to give authors constructive criticism and support, the Editorial Committee expends considerable effort in reviewing articles and discussing them with authors. Final substantive editorial changes are cleared with authors. In discussing the magazine's content, in the "About This Issue" column, the Editorial Committee may point out unexplored questions, describe the range of opinion within *SftP* on a particular issue and draw some additional political interpretations of its own from the articles.

Current Opinion. Short, tightly argued positions on timely subjects are required for the Current Opinion feature. These contributions, including an occasional one from the Editorial Committee, should rely on facts and analysis generally accepted by the membership. It is the responsibility of the Editorial Committee to try to select those which best clarify the debate; this will include discussing changes with authors. Contributions should be 500 words or less, in 3 copies.

Other Contributions: Letters: contributions for continuing debate, commenting on previous magazine content, initiating new discussion, etc. News Notes: news items illustrating the social and political role of science and technology, especially reporting people's actions on these kinds of issues (300 words or less). Chapter Reports and *SftP* Activities: brief summaries having essentially assured publication, with editing. Graphics: all kinds, including cartoons, designs, photographs, etc., not necessarily original but with credits.

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