SCIENCE FOR THE PEOPLE

NURSES STRIKE!

SCIENCE IN BRAZIL

LIMITS TO GROWTH

INT'L WOMEN'S DAY

the People United will never be Defeated!

VOL. VII NO. 3 75¢

BI-MONTHLY PUBLICATION OF SCIENTISTS AND ENGINEERS FOR SOCIAL AND POLITICAL ACTION · SESPA · MAY 1975

During the last weeks of the production of this magazine, the long struggle in South East Asia has been building toward people's victory. We in Science for the People are inspired by the strength and courage of our sisters and brothers in Indochina and wish to express our solidarity with them. We rejoice in this time of triumph.

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CONTRIBUTORS: David Gaynor, Elinor Blake, Thomas Bodenheimer, Carol Mermey, Ad hoc Committee on International Women's Day, Bertholt Brecht, Maurice Bazin and Brazilian comrades, Al Weinrub, Charles Schwartz, New York City SftP, Fran Conrad, David Jhirad, Marion Lowe, Paolo Strigini.

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ERROR

Vol. VII, no. 2, page 36. The first sentence in the second column should read, "Dimitroff instructed that fascism in power is 'the open terrorist dictatorship of the most reactionary, most chauvinistic, and most imperialist elements of finance capital.'"*

EDITORIAL PRACTICE

Each issue of *Science for the People* is prepared by a collective assembled from volunteers by the magazine coordinating committee. A collective carries out all editorial, production, and distribution functions for one issue. The following is a distillation of the actual practice of past collectives. Due dates: Articles received by the first week of an odd-numbered month can generally be considered for the magazine to be issued on the 15th of the next month. Form: One of the ways you can help is to submit double-spaced typewritten manuscripts with ample margins. If you can send six copies, that helps even more. One of the few founding principles of SESPA is that articles must be signed (a pseudonym is acceptable). Criteria for acceptance: *SESPA Newsletter*, predecessor to *Science for the People*, was pledged to print everything submitted. It is no longer feasible to continue this policy, although the practice thus far has been to print all articles descriptive of SESPA/Science for the People activities. Considerably more discrimination is applied to analytical articles. These are expected to reflect the general political outlook of *Science for the People*. All articles are judged on the basis of length, style, subject and content. Editorial Procedure: The content of each issue is determined by unanimous consent of the collective. Where extensive rewriting of an article is required, the preference of the collective is to discuss the changes with the author. If this is not practical, reasons for rejection are sent to the author. An attempt is made to convey suggestions for improvement. If an article is late or excluded for lack of space or if it has non-unanimous support, it is generally passed on to the next collective. Editorial statements: Unsigned articles are statements of the editorial collective. Opportunities for participation: Volunteers for editorial collectives should be aware that each issue requires a substantial contribution of time and energy for a twelve-week period. Help is always appreciated and provides an opportunity for the helper to learn and for the collective to get to know a prospective member. There are presently plans to move the magazine production to other cities. This will increase the opportunity for participation. For legal purposes, *Science for the People* has become incorporated. *Science for the People* is now available in microfilm from Xerox University Microfilms, 300 North Zeeb Rd., Ann Arbor, Mich. 48106, (313) 761-4700.

ABOUT THIS ISSUE

This issue of *Science for the People* represents a turning point in the production of the magazine. In accordance with the resolution passed at the Northeast Regional Conference last November, the system involving relatively autonomous editorial collectives, each responsible for all phases of production of one issue of the magazine, will be replaced by three more permanent committees. The new structure involves more clearly defined division of labor — one committee handles editorial aspects, another has charge of production itself (layout, paste-up, etc.), and a third is responsible for distribution. The editorial collective system allowed for a diversity of style and political opinion and provided a forum for some very exciting ideological debate. But it is a method that is no longer appropriate for the direction in which *Science for the People* has chosen to move. The new structure allows for the development of a more coherent, consistent analysis that we hope will help in our recent efforts to build unity in the organization on a national level. As ever, and more now that we are in transition, we welcome and seek your reactions to our efforts.

At the beginning, the three of us who make up this editorial collective, all women, envisioned the May magazine strongly oriented around issues of women and science. Such material, based on a strong class analysis and dealing concretly with the realities of our lives, is not, however, just sitting around in our files waiting to be published. As it turned out, the major article about women ("RN's Strike") is a reprint from another publication.

The article about the RN strike in San Francisco and subsequent organizing efforts there is especially timely in light of the recent strike of interns and residents in New York City hospitals. These efforts represent a new understanding among health professionals that providing quality patient care is impossible under existing conditions of understaffing, long hours, low pay and in the absence of worker control.

Other limits are presently imposed on the quality of health care besides those directly dealt with in those strikes. The recent conviction of Dr. Kenneth Edelin in Boston is resulting in frequent denial of one phase of basic medical services to women all over the world. In his poem about Marie Farrar, Bertholt Brecht expresses the timeless desperation experienced by women who are denied control of their own bodies. Some members of *Science for the People* participated in one of the marches in New York City commemorating International Women's Day and spoke about some of these issues at the rally at the UN. The text of that speech is reprinted in this issue.

We continue in this magazine *Science for the People's* analysis of the so-called "energy crisis" with some interesting research from Charlie Schwartz of the Berkeley chapter. And Al Weinrub reviews the pamphlet "The Energy Crisis and The Real Crisis Behind It", a recent addition to the growing list of excellent anti-imperialist popular-style pamphlets available from United Front Press in San Francisco. Also appearing in this issue is a critique by some Boston *Science for the People* members of the recent theories of limits to growth. Because these theories have been getting a lot of attention in science and economics circles, we felt that the Jhirad/Lowe/Strigini analysis was important to print. It exposes the myth upon which all of these "doomsday" theories rest - namely that capitalism must prevail. One weakness of the article, however, is that although it clearly states that under a more rational system of distribution of resources (based on the needs of the majority rather than profit for the few, *i.e.*, socialism) real scarcity is a *much* longer way off, it fails to be explicit about the ways that socialism would solve these problems. We would have liked to see a more detailed picture of concrete changes that socialism will bring to our daily lives in terms of food, transportation, the quality of our environment, etc.

Although the method of production of *Science for the People* changes with the next issue, the articles are still drawn from our readers. We expect this new system to allow us to build up a substantial file of material (by subject) that can be tapped when we want to present articles covering certain areas. It means, we hope, increased ability to communicate with authors in advance of publication about changes in content or style. So please continue to send us your articles, and short news and cartoons and photographs and requests and questions and comments and criticisms. The quality of *Science for the People* depends on your input.

GRAPHICS

If you can help with: drawings, cartoons, photographs, or designs, which pertain to . . . science, technology, energy, pollution, conservation, health care, nutrition, computers, women in science, the struggle against racism and imperialism, community organizing, etc. Please contact:

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NEWS NOTES

Everyone! Please contribute items of interest and humor to this regular section.

MASS STERILIZATION IN PUERTO RICO

One-third of the women of childbearing age in Puerto Rico have been surgically sterilized, according to government figures. In 1968 a Puerto Rican government study showed that 200,000 women (35% of the childbearing population) had undergone the irreversible operation, and since then government programs have continued.

Dr. Antonio Silva, the Puerto Rican government's assistant secretary of health for family planning, announced in November that "free clinics" in Puerto Rico have been doing about 1000 sterilizations per month since February 6, 1974.

Silva said that the government is pushing sterilization as a way to achieve "optimum socio-economic balance."

Those who push the plan cite Puerto Rico's high unemployment levels and population density. They say that the people of that country would be better off if there were fewer of them. They say that no one is forced into sterilizations — they are all volunteers. But, if you ask the right questions, the pattern of "social planning" is exposed as the plan of a few business people to control the economy and resources of a colonial country.

Since 1935, the U.S. has pushed sterilization as a means of birth control. During the 1950's, one of every five deliveries in Puerto Rican hospitals was followed by sterilization. Also in that decade, drug companies were experimenting on Puerto Rican women with early versions of the birth control pill. They were considerably stronger, and produced much more serious side effects than the pills which are presently causing controversy on the U.S. market.

A recent *New York Times* article favorable to the sterilization program justified it by saying that Puerto Rico's population density is higher than Japan's, India's, or China's. Those three countries illustrate a point. India, which was a colony for centuries, and is still exploited by Western businesses, has an extremely low standard of living. Japan, a highly-industrialized capitalist country, has problems related to the world-wide economic crisis. And China, a recently socialist country, is able to feed all of its people and is gradually raising its standard of living.

Population control as an isolated matter is not in itself a negative thing. It all depends on the economic and political forces that carry it out. [See *Science for the People*, Vol. VI, No. 1, Jan. 1974.] In Puerto Rico, with U.S. big business changing to less labor intensive heavy industry, they need to eliminate a potentially explosive army of unemployed. And what better way to eliminate them than to keep them from being born?

— CPF

GENOCIDE CONTINUES

Native Americans are charging that the U.S. Public Health Service has been conducting numerous irreversible sterilization operations on young Native American mothers without informing them of the exact nature of the surgeries.

Representatives of the Mohawk Nation state that many of these sterilization operations have been conducted with government funds at the Indian Health Service Hospital in Claremont, Oklahoma.

Doctor Connie Uri, a Los Angeles physician who reviewed the statistics for the Claremont Hospital, reports finding that 132 Native American women were surgically sterilized during 1973.

Doctor Uri says that 100 of these sterilizations were non-therapeutic. In other words, the sole purpose of the surgery was to render the women incapable of having children, she says.

MOTHERS WIN CUSTODY

Two lesbian women have been granted continued custody of their children in a recent court ruling in Washington state. A suit against Sandy Schuster and Maddy Isaacson was brought by the children's fathers who argued that the two women were living together with their children as a family, and had become "notorious lesbians" and "espoused lesbian causes." The prosecution claimed they were unfit parents on the basis of their lesbianism.

Both Maddy and Sandy have spoken widely about their lives as lesbian mothers and about human sexuality in general. They have written a book, made a movie, appeared on radio and television programs, given newspaper and magazine interviews, and spoken to many orgranizations on the west coast.

The court refused to limit the two women's right to publicly speak out about their lifestyle and sexuality, and ruled, as a matter of law, that homosexuality *per se* is not a proper basis for denying custody to a parent.

PLANES FOR PEACE

More indications of the close cooperation between the imperialists in this country and the military government in Chile appear in the October 14, 1974, issue of *Aviation Week*: substantial sales to the junta of attack aircraft and fighter planes. The U.S. government will begin delivering 16 USAF A-37B's to Chile this March, with an additional 18 already authorized by the State Dept. The junta is still thinking this second offer over. 18 F-5's are scheduled to be delivered by Northrop Corporation in 1976. No mention of the sources of financial backing for the $80 million or more of airplanes was made.

— American Friends Service Committee

ENGINEERS SEE RED AT RIVER ROUGE

Four hundred engineers and layout men, told by Ford Motors in November that they were laid off indefinitely, went back to their desks and tore up blueprints and other drawings of coming new cars, and smashed wooden models of future cars.

The company had to call Dearborn police to oust the angry skilled employees from the Ford River Rouge complex.

Other hundreds of the same classification got a 10% wage cut at the same time, and many of them joined in the angry protest.

Ford announced the layoff and wage cut on the same day that its nine-month financial report appeared, showing $339 million profit after taxes.

Ford's action was part of layoffs that brought the Michigan count of unemployed to 342,000 by late November.

In all, GM, Ford, and Chrysler announced in their finance reports a total $802 million profits for nine months of 1974, after taxes.

— The *Daily World/CPF*

ITALIANS FIGHT INFLATIONARY SQUEEZE

Economic hardship has prompted militant actions by working-class Italians, including apartment occupations and refusals to pay utility rate increases.

On the morning of January 30, more than 400 police broke down doors and violently threw women and children out of bed as they stormed a housing project in Rome where 173 families have been occupying apartments for the last two months. By mid-morning, the families and many of their neighbors had organized a street blockade on Via Tiburtina, the main road leading into central Rome, in protest against the police action. It took the police 3 hours to break the blockade on Via Tiburtina, and by that afternoon, the police had been driven out of the housing project, and the families returned to their homes.

Earlier, on December 18, the Italian government was forced to sign an agreement with trade union representatives rescinding the anti-working class electrical rate system established by decree last July. The pressure on the government came from protests in which workers, families, and communities joined together and refused to pay inflated prices, such as rate increases for utilities and public transportation.

The agreement did away with the fixed electrical rate, allowing those who consume less electricity (usually the poorer people) to pay less, and transferred the bulk of the expense onto large industry and other heavy consumers of electrical energy. As a result, two million families will actually pay less for electricity than they did last July; seven million families will obtain a substantial reduction from the present rate; and 70% of all the consumers of electrical energy will no longer be subject to rate increases based on increases in the price of oil.

LAW AND ORDER TECHNOLOGY FOR COLUMBIA (MADE IN U.S.A.)

When election time comes around in Columbia, riot control "pacifying" equipment is airlifted from the U.S. and new contracts are signed for the next improved models. The problem is that Columbians know that elections are a pure farce and students denounce it by taking to the streets.

In 1970, 1200 light patrol cars were used to break through crowd concentrations. They were provided by the Ford Motor Co. to equip the specially, U.S.-trained, repressive police group euphemistically called the *Fuerza Disponible* (Available Force). In the spring of 1974, the latest U.S. products of advanced police technology were received, one week before the elections. The new weapons (shot guns, stunt guns, gas throwers, grenade launchers) were demonstrated to the Columbian press. Columbia, like all dependent Third World countries, provides a convenient testing ground for such U.S. equipment. Within 24 hours it was put to use to attack the University campus where students were holding a rally calling for abstaining in the elections. Three students were killed. One of the weapons used was the "stunt gun" which fires half a dozen half-inch diameter pellets. One of the students killed by the police had seven holes in his jacket and a pellet was recovered from his chest.

— Friends in Colombia

On June 7, 1974, 4,400 registered nurses struck 41 hospitals and clinics in the San Francisco Bay area. The RN's, all members of the California Nurses' Association (CNA), remained on the picket lines for 21 days. With the American Nurses' Association holding its annual national convention in San Francisco during the strike, the issues were discussed and brought back to every state in the nation.

On one level the RN strike differed from typical management-labor disputes. The central demands were not for increased wages and other bread-and-butter gains. Rather, RN's posed their fight in terms of control over working conditions and the quality of patient care. In addition, RN's and their professional association, the CNA, displayed a new level of militancy in their willingness to confront the administration on the picket line.

On the other hand, the strike poses many problems and contradictions with far-reaching relevance for future struggles by hospital workers. Given the existing hierarchical division of labor within the hospital, will bargaining along narrow skill lines by a relatively privileged group of professional nurses serve to create even more tension and divisions? And what is the meaning of the demand for workers' control when that demand is made for the sole benefit of a narrowly defined group? On a more pragmatic level, can any single classification of hospital workers win its demands without uniting with others — that is, can any one group muster enough clout to shut the hospital down and force the administration to capitulate?

No Ordinary Demands

In 1970 the CNA won a clause in its contract with Bay Area hospitals giving RN's the right to help determine how wards are staffed. The clause called for "participation of Staff Nurses in the assessment of patients' daily needs for nursing care and the basis upon which nursing personnel are assigned . . ." By the time the contract expired on December 31, 1973, neither the hospitals nor the CNA had moved in a significant way to implement this clause. When negotiations for the 1974 contract opened, management's position on the staffing issue became unequivocal—delete the clause and deny RN's any participation in staffing matters.

The staffing clause became the core of the strike: Who decides how many and what type of personnel should work on each unit? This issue is central to both hospital workers and patients. Understaffing makes workers unable to perform all necessary tasks. Patients find that their needs are ignored for hours, and even then are met in a brusque and hurried manner.

Administration, through the director of nursing, distributes RN's, LVN's (licensed vocational nurses, also called licensed practical nurses in some states) and aides around the hospital according to the number of patients on each floor. Some hospitals use the more sophisticated "acuity" method of staffing, which takes into account that some patients are sicker than others and need more staff time. But in all cases, the number of workers is

determined by administration, and if the fiscal picture looks bad, staff can be cut back no matter how full or how busy the wards become.

One RN, for example, tells of working a night on a floor with 30 patients, many acutely ill, staffed with one RN, one LVN and one aide. Thirteen patients had intravenous solution bottles running. Each bottle had to be changed at different times, requiring close watching to prevent bottles from running dry. In addition one patient needed irrigation of the bladder with multiple bottles of fluid. After continued pleas from the beleaguered RN, the nursing office offered only one extra LVN — this despite the fact that hospital regulations do not allow LVN's to perform these tasks.

Management was steadfast in its refusal to allow an RN voice in staffing. Hospital negotiator Arthur Mendelson warned physicians: "If we accede to the demands of the registered staff nurses and the California Nurses' Association in this connection it is only one step away for the registered staff nurses to demand a voice in the way you treat your patients with respect to admissions, discharge, treatment and length of stay." The American Hospital Association, in an alarmist statement, took up the cudgels: "An issue with national implications is at stake here. Under the banner of an interest in the quality of care, the striking nurses are attempting to gain control over the number of nurses employed by each hospital. . ."

In truth, the staffing demand was not nearly as threatening as Mendelson described it. The CNA was merely asking for participation in deciding staffing levels, not control over staffing. Some RNs defined the strike as a worker control struggle but the demands were not in fact that progressive.

The staffing issue did, however, have implications for other hospital workers. Why shouldn't all personnel on a unit — including LVN's, orderlies and aides — be involved in staffing decisions? The strike could not deal with this question since the CNA is a professional association separate from the union of other hospital workers, and as such can bargain only on behalf of RN's. Thus the demand for some control over staffing by RN's missed the mark of what real worker control might mean — teams composed of all workers on a floor deciding staffing patterns, division of labor between workers, and patient diagnosis and treatment.

A second strike demand was that administration not assign RN's without appropriate training to specialty units. The technological explosion in health care has brought with it increased specialization. Doctors carve out an organ or two as their exclusive area of concern. Technicians are increasingly split up into narrow functions. And with RN's operating complex devices in intensive care units, coronary care units, renal dialysis, emergency rooms and other specialized areas of the hospital, nursing is following suit.

RN's at Bay Area hospitals flatly stated that administrators were staffing specialty units with unqualified "floating" nurses — nurses who spend different days on different floors. At Mt. Zion Hospital in San Francisco, administration first denied the charge of improper staffing, but later reluctantly admitted to such staffing in case of "emergency." An intensive care unit nurse responded, "If Mt. Zion does indeed assign untrained nurses to specialty care areas only in emergency situations, then these areas are in a constant state of emergency."

Not only is this practice dangerous to patients, but it is intolerable to hospital workers. One RN told of an orderly sent to a pediatric unit where he had never been trained to work. The orderly accidentally disconnected a life-supporting device. After some tense moments, the child's condition was restored, but the orderly was distraught by what he had nearly done. Nevertheless, the specialty staffing demand would do nothing for this situation since it applies only to RN's.

Bread-and-butter demands were not altogether ignored. These included demands for every other weekend off for all RN's, a 5.5 percent pay increase and a cost-of-living escalator clause. The CNA also asked for a pension plan separate from other workers and portable from one hospital to another. Pensions were an issue because RN's frequently change jobs and do not benefit from the money they place into hospital-wide pension plans. The demand reflects the high degree of job mobility of RN's vis-a-vis other less mobile and less privileged hospital workers.

Why a Strike?

The precipitating cause of the strike was the hospitals' complete intransigence on the staffing issue. Hospital management had refused to negotiate until a few days before the contract expired at the end of 1973, and had failed to budge during the five months of talks in 1974. Administration not only wanted to delete the gains won by the CNA regarding participation in staffing in the 1971-3 contract, but pushed to include a management's rights clause. According to Burton White, CNA Director of Economic and General Welfare, "Management was trying to turn back the clock. That was too much." The CNA had no choice but to give in or strike.

Woven into the strike decision were several underlying threads. Staffing conditions in hospitals have tightened due to the excess of hospital beds and the federal wage-price controls, both of which have hurt the hospitals' economic position. From management's point of view, there is a critical need to limit staffing — after all, each additional worker costs money. For management it would be unthinkable to allow hospital workers — who have no responsibility for keeping the hospital in the black — to control levels of expenditure. From the workers' point of view, the economic pinch means speed-up — more work for each person to do — and wages that fail to keep up with the rising cost of living. Two other Bay Area hospital strikes in the past year — at Kaiser and San Francisco General hospitals — reflect the workers' refusal to bear the brunt of the economic situation.

At the same time, many RN's have been influenced by the women's liberation movement, acquiring a new self-respect and militancy. Traditionally nursing has been

women's work — an extension of their caring, cleaning and serving roles as mothers and housewives (see *Health/Pac Bulletin*, March, 1970, September, 1970, and April, 1972). Socialized to be passive and to accept the devaluation of their contributions as workers, women have been reticent to speak up for their rights and push forth their demands at the workplace. Although feminist issues were not at the forefront of this strike, women asserted leadership, self-reliance and self-confidence, taking themselves and their jobs seriously. A Kaiser RN stated, "If it weren't for women's lib, we wouldn't have been striking." Another went on to say, "It definitely gave us the courage to speak up and express our opinions."

Also underlying the strike was the CNA's response to the new militancy of the rank-and-file RN's. In Los Angeles, 600 public hospital RN's recently switched from the CNA to representation by the Service Employees International Union (AFL-CIO). In San Francisco, the AFL-CIO and the Teamsters are the collective bargaining agents for increasing numbers of public hospital RN's. This year seemed like the CNA's last chance to prevent widespread defection of RN's into labor unions.

A final condition underlying the strike was the fact that the RN's didn't know what they were getting into. The CNA had little experience in conducting strikes and the RN's shared a widespread feeling that "We'll go out for a few days, win and be back on the job next Monday."

Prelude to the Picket Line

In December 1973 the CNA entered into contract negotiations with three groups on northern California hospitals: Affiliated Hospitals (most of San Francisco's private hospitals, banded together solely for the purposes of collective bargaining), Associated Hospitals (a similar grouping mainly in Oakland and Berkeley) and the Kaiser hospitals and clinics.

In January, 1974, the Bay Area Negotiating Council was created to represent the RN's with each hospital electing two representatives to serve on it. The Council in turn selected 12 RN's to sit in on the negotiating team. These 12 joined five paid CNA staff members, led by Burton White, a non-RN and experienced labor negotiator. Thus the CNA leadership (staff plus elected officials) was under the surveillance of rank-and-file RN's at the bargaining table.

During the five months of weekly bargaining sessions, the Negotiating Council served as a communications link between the RN's and the CNA. Information about negotiations and strategies passed from the negotiating team to the Council, and the Council brought questions and concerns from RN's at the individual facilities.

In May, mass meetings attended by 1,300 RN's rejected a management proposal by a 95 percent vote and authorized strike action. On June 7, Negotiation Council member Joyce Boone declared, "We are a new breed of nurses, fighting for our rights and those of our patients." The same day RN's set up picket lines around over 40 health facilities.

Meanwhile, contracts for LVN's, aides, housekeeping and dietary workers, represented by Local 250 of the Service Employees International Union (AFL-CIO), had also expired January 1, 1974. Negotiations dragged on for the first five months of the year. As the CNA prepared for strike action, management became increasingly anxious to settle with Local 250. Hospitals can manage without RN's; after all, LVN's do many RN tasks anyway (even though they are paid much less). But a simultaneous walkout by RN's and other hospital workers would be devastating.

So shortly before the anticipated RN strike, management offered a 40 cent per hour (9-12 percent) across-the-board increase to Local 250 members. The union, which had negotiated without rank-and-file participation, recommended acceptance of the offer. Withholding the terms of the agreement from its members until 45 minutes before the vote, the union achieved ratification and thereby helped management avert a combined strike. No attempts had been made by the CNA and Local 250 to coordinate or combine their strategies. Hospital administrators heaved a sigh of relief: Divide and conquer had worked again.

Going It Alone

Unaware of the import of the Local 250 settlement on their own struggle, the RN's went it alone. Bearing signs declaring, "Patients are our business," "We want to serve what you deserve," "Qualified nurses for specialty units," and "Better staffing equals better patient care," the RN's picketed the entrances to their hospitals. Some 50 to 95 percent of RN's participated in the strike, varying from hospital to hospital, a response far better than expected. The RN's encouraged other workers to wear blue armbands in support of the strike but not to leave their jobs.

The CNA hoped to exert financial pressure on the hospitals by eliminating the profitable elective surgery and non-emergency admissions. But not forgetting the patients, the RN's initially maintained staffing of emergency and intensive care areas. Hospitals reported occupancies running 40 to 50 percent of normal levels. Though these occupancy levels clearly hurt the hospitals financially, they were not low enough to bring the institutions to their knees.

Three days after the strike began, 8,000 RN's gathered in San Francisco for the annual American Nurses' Association (ANA) convention. ANA delegates joined the picket line, raised funds and overwhelmingly passed a resolution in support of the strike.

On June 12, 200 Kaiser RN's rallied at the Kaiser Center in Oakland, and the following day several hundred RN's held a spirited demonstration in San Francisco. A week later, a march picking up RN's at each hospital converged on San Francisco's Civic Center Plaza for another major rally. Day after day, the strike was the leading story on local TV news broadcasts, with charges and countercharges flying between the CNA and the hospitals.

On June 20, with negotiations at an impasse, the RN's upped the ante — they withdrew from the emergency and intensive care areas. Irene Pope, President and Acting Executive Director of the CNA, charged that hospitals were assigning supervisory personnel to non-critical care areas because they had strikers available to staff emergency units. Others observed that patients who did not need critical care were kept in the critical care area.

The pull-out from emergency units was the only tactic available to a professional association that bargains for only a limited number of workers in an institution. Strikes by all workers — closing down profitable but not emergency areas of hospitals — would have been more effective in advancing the RN cause than the emergency unit pull-out. But the CNA did not want support strikes by other workers. At least one group, the X-ray technicians at Herrick Hospital, members of the International Longshoremen's and Warehousemen's Union, were on the verge of a sympathy strike when word came from Herrick RN's that the CNA had rejected the support offer, not wishing to be obligated to honor future X-ray technician strikes. One Herrick X-ray technician said, "We wanted to go out — there was sympathy with the RN's standing up to the doctors and administration. But when the RN's told me they didn't want our strike, I pulled my blue armband right off."

The RN's did gain substantial public suport from other groups during the stike. Unable to unite with Local 250 in their own workplaces, the RN's did receive verbal backing from Local 1199 of the National Union of Hospital and Health Care Employees in New York City. The interns and residents organization at San Francisco's Children's Hospital issued a statement of support, as did 63 members of Mt. Zion's house staff. Over 100 unit clerks, lab techs, LVN's, social workers and housekeeping personnel at Mt. Zion Hospital signed a petition of support.

TOO MANY BEDS SPOIL THE BUDGET

Why are Bay Area hospitals so insistent on understaffing in order to keep their costs down? The reason is that the hospitals have gotten themselves into financial trouble by overbuilding. As the *San Francisco Examiner* (June 9, 1974) editorialized, "San Francisco has too many hsopitals occupying too much land, filled with too many beds, loaded with too many expensive medical devices and — partly as a result of all these excesses — charging too much for medical care."

According to the Bay Area Comprehensive Health Planning Council, San Francisco and Oakland hospitals have occupancy rates around 65 percent. By 1978, San Francisco will have 1,412 unneeded beds. With an unoccupied bed costing $50,000 to build and $20,000 per year to maintain (see *HEALTH/PAC Bulletin,* March/April, 1974), these excess beds are costing $28 million per year plus the initial construction cost of $70 million.

Since empty beds bring in no revenue, hospital management must make up the lost money by charging patients more and/or spending less on employees. The most effective way to save is to cut back the total number of workers.

With the empty bed crisis worsening, competition among hospital managements is intensifying. Already one San Francisco hospital, Harkness, is closing down. To make sure his hospital won't be next, each administrator must look for new and better ways to admit more patients, charge them more, hire fewer workers and increase their productivity.

But in several hospitals, the atmosphere was hostile toward non-RN staff who supported the strike. Many workers feel that RN's are the supervisors or the "foremen" on the floor, and the strike demands were seen as potentially increasing RN's power over other workers. Thus workers who donned blue armbands soon began to feel isolated. In fact, one Local 250 representative even threatened to fine armband wearers $50.

As the strike wore on, RN's began to feel acutely the absence of their paychecks. The CNA leadership, fearing that RN's would straggle back to work, tried to hasten the bargaining process by edging the 12 elected RN's off the negotiating team. Told that they were too inexperienced to participate in this stage of the negotiations, the elected team members were forced to wait outside the negotiating room. CNA staff negotiators justified their moves by instilling a Henry Kissinger aura upon the delicate sessions and convinced the team not to speak with their rank-and-file peers.

On June 23, after several attempts to force management to sit down with third-party mediators, the CNA finally succeeded in securing the services of William J. Usery, Jr., chief federal negotiator and personal labor troubleshooter for then-President Nixon. Usery immediately called for around-the-clock negotiations and a news blackout that extended to the striking RN's. With the breakdown of the democratic process, some RN's began to shift their anger from management to the CNA.

On June 26 a settlement was announced. At 7 p.m. on June 27 the striking RN's, without having been allowed to see the settlement, assembled at San Fransisco's giant Cow Palace. Some of them angrily demanded individual hospital caucuses to discuss the agreement before voting on it. But after a short period of confused debate, a vote was forced. The RN's accepted the package by a vote of 1,670 to 494.

Victory or Holding Action?

The CNA leadership touted the strike settlement as a major victory for RN's. Most importantly, management failed to delete the key staffing clause from the existing contract. Concerning the specialty units, the new agreement provides that "Except in case of emergency, nurses without appropriate training and/or experience shall not be assigned to such areas." The first five words are those of management, and whether this clause is a victory or defeat for the RN's depends on how "emergency" is defined. Management decides what is an emergency unless the CNA can overturn their definition by filing and winning grievances. The hospitals also agree to provide training for specialty care.

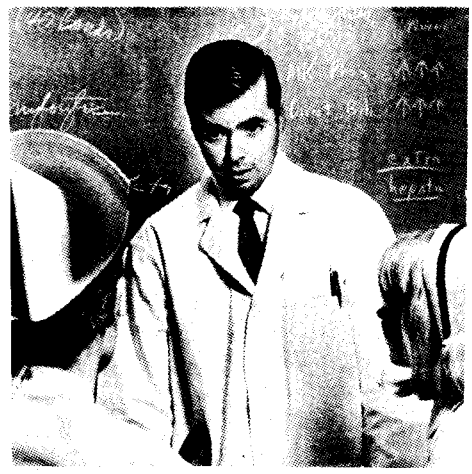
The RN's won a whopping 11 percent pay boost, felt by some to be an overt attempt to buy them off. In fact, the figure represents the 5.5 percent raise asked for plus a one-shot 5.5 percent cost-of-living adjustment to cover inflation since January 1. The RN's failed to win a continuing cost-of-living escalator clause. The demand for alternate weekends off was compromised, and the portable pension plan was not granted but was submitted for study. Management conceded to the opening of certain issues for renegotiation on January 1, 1975.

Rather than a victory, the settlement is actually closer to a successful holding action. With the economy in decline, hospitals, like all industries, are trying to squeeze more work out of their employees at lower cost to themselves. The retention of the staffing clause provides the RN's with at least some leverage to fight against understaffing and speed-up. The pay increase slows the rate at which RN's incomes fall behind inflation. The specialty staffing clause, provided that the RN's fight for its implementation, is the only substantial move ahead. Given management's refusal to yield the slightest decision-making authority to the RN's, the staffing portions of the new contract are of little use without constant grievances and battles for enforcement by the RN's at each hospital.

The New Consciousness

After five months of negotiating and 21 days of striking, the RN's won a holding action but made few advances in changing their objective conditions of work. RN's have returned to find the wards still understaffed and themselves still overworked. And the tensions manifested during the strike between RN's and those who take orders from them, such as LVN's, orderlies and aides, have not magically disappeared.

Nevertheless, for the RN's the strike had significance that went past the bargaining table and changes in objective conditions of work. The most marked achievement was the mobilization of the RN's from the wards to the picket lines and the development of a sense of unity, militancy and self-reliance — the antitheses of the passive role women are socialized into in nursing school.



Equally important was the way the strike served to break down the isolation among RN's. There are many structural organizational reasons for hospital workers to be isolated from one another: Wards are physically separate, some jobs are more prestigious than others, some pay more and people on different shifts seldom see each other. Moreover, the assigned workloads are often so heavy that merely getting one's work done is difficult. Working together during the strike gave RN's a chance to get to know and trust on another as well as to develop collective strategies and solutions. An obstetrics nurse at Alameda Hospital stated, "The strike has given us a new sense of unity."

The strike also served to show the true face of the CNA. Throughout the five months of negotiations and for the first part of the strike the CNA was remarkably democratic, allowing for participation by rank-and-file RN's. RN's were represented on both the negotiating team and the Negotiating Council, bringing the latest developments and management offers back to RN's at the hospitals they represented. In the last week of the strike, however, the CNA reverted to top-down, heavy-handed tactics, which many RN's found infuriating. Re-

flecting this anger, a committee of RN's at Mt. Zion Hospital sent the following letter to the CNA:

> *We at Mt. Zion feel that we were sold out.... The most charitable view expressed has been that the team members had hit a low point in their motivation and energy and that they were afraid to let Usery leave without a settlement.... The other, less charitable opinion is that the strike was, from the first, a grandstanding maneuver by the paid officials of the CNA; a tactic to tighten their hold on jurisdiction over RN's in the Bay Area....*
>
> *We feel that these questions must be spoken to by the leadership of CNA. We ask for the support of all CNA members in working to ensure that this betrayal of democratic principles in our organization does not repeat itself. We are willing to work within CNA to make the leadership more responsive to our needs and to strengthend their commitment to the democratic process. We are willing to work to use the contract to make whatever progress is possible on the issues of staffing, patient care, and professioinal self-determination. We hope that our analysis of the situation will provide food for thought for all CNA mambers returning to work under this contract.*

Democracy, however, is far from the central issue regarding the CNA. What is at question is the difference between a professional association and a non-hierarchial, anti-professional organization of workers fighting for their own power and interests. Historically the CNA, while making minimal support gestures in other hospital workers' struggles, has not even honored picket lines during their strikes. By choosing to go it alone, the CNA not only loses a powerful bargaining weapon, but keeps RN's separated from the majority of hospital workers.

The Old Contradictions

While on the one hand the strike raised the level of consciousness of the RN's, on the other hand it manifested and exacerbated the existing tensions and contradictions found in the hospital workforce—namely the race, class and sex antagonisms upon which the hierarchical division of labor rests. At the top of this hierarchy are the male administrators and physicians, enjoying high status, income and power. Next come RN's, predominantly white female professionals, who in this case were demanding a piece of the pie. Beneath them are LVN's, aides, orderlies and other low-paid, predominantly Third World workers who make up the majority of the workforce and take their orders from the RN's.

While RN's are in supervisory roles and make more money than other hospital employees, they are still wage workers and are exploited as such. The ideology of professionalism promotes elitism on the part of RN's, but in fact they have more in common with other workers than with doctors or administrators. The RN's are pawns in the hospital hierarchy, placed in positions in which they must assume responsibility for running a floor and give orders to other workers. They are forced to act as a buffer for the doctors and administrators, becoming, whether they like it or not, the most visible authority figures, who do the dirty work of the administrators and boss other workers around.

Reactions of other workers during the strike underscore these tensions and hostilities. A worker at Children's Hospital in San Francisco said, "We're better off without them here." Another worker characterized the strike, "The attitudes of the nurses during the strike seem to have been taken over from doctors — anti-union, pro-professional, pro-specialization. They were competing with doctors to gain more decisions over patient care by raising their level of professionalism to that of doctors."

In the final analysis, RN's alone cannot shut hospitals down and bring significant change to their workplaces.

In the long run, demands for professional upgrading by RN's are made at the expense not only of other workers but of the RN's themselves. The RN strike has made clear the tremendous obstacles to success that exist when different hospital workers' groups fight their own battles in isolation and even opposition to those of other health workers.

— David Gaynor, Elinor Blake, Thomas Bodenheimer and Carol Mermey.

This article originally appeared in HEALTH/PAC BULLETIN *#60, Sept./Oct. 1974.*

As this issue was going to press, we received further communication from a member of the Bay Area Negotiating Council. This article (which will hopefully appear in a later issue) tells of the solidarity, trust, and collective effort that grew during the strike last year. Since then, organizing has continued around the contradictions that emerged in the final days of the strike.

By June 1974 the paid CNA (not working nurses) had taken over the negotiations; they refused to meet with the nurses-elected Negotiating Council, to release a copy of the proposed contract in advance of the ratification meeting, to recognize the dissenting voices of one third of the staff nurses. Since then, the Negotiating Council and rank-and-file nurses have worked together to reassert the power of their elected leadership. The CNA people are now the advisors, whereas in June the Negotiating Council was advisory. Shop stewards, rank-and-file staff nurses, have formed a council, elected their own officers, organized their own training programs, and contacted active labor lawyers for advice and support. All of this has been done outside the formal CNA structure. The stewards have also been filing grievances at the request of the staff nurses against the advice of the CNA.

Since the strike, organizing efforts have also been centered around the basic problems which arise from the nature of the class backgrounds and professional orientation of the RN's. While the RN's had the sympathy of some other workers, they were the only ones on strike, a situation which exacerbated the already existing tensions between the RN's and other workers. RN's are now in a position somewhere between management and workers. One of the questions being asked now is, "Which way will they go, with management or their fellow workers?."

INTERNATIONAL WOMEN'S DAY 1975

On March 8, 1975, a dozen Science for the People members from Boston participated in the celebration of International Women's Day by joining a march sponsored by the anti-imperialist International Women's Day Coalition in New York City. The coalition was composed of the Congress of African People, Puerto Rican Revolutionary Workers Organization, the October League, two Ethiopian student groups, the Haitian Women's Study Group, and two other Haitian groups, making the march half women, half men, half Third World, half white.

Some 300 strong the march proceeded from historic Thompkins Square on the Lower East Side — scene of a police massacre of peacefully assembled unemployed women, men and children in 1874 — to the United Nations Plaza 40 blocks away. Along the march route, which took us through a Puerto Rican working class neighborhood, leaflets were passed out and those of us who were in the rear section of the march could observe the very positive response of most bystanders. Many stopped to read the leaftlets printed in English, Spanish, and French and bought buttons. The crowd was decidedly friendly rather than indifferent or hostile.

Most of the participating groups had speakers at the rally who made clear the connection between women's oppression and imperialism. The atmosphere was festive, generating enthusiasm with many colorful banners, and topped off by a rousing performance by two revolutionary Third World singing groups, so that one can almost literally say that we were dancing in the streets.

Science for the People had been asked to report on the Edelin case in Boston. Joan Weisberg delivered a collectively written speech the text of which is reprinted below.

Boston has recently become the arena for a massive attack on women, Third World and working class people. The racist anti-busing movement has provided a cover for violent attacks on Third World people. The anti-abortion movement focuses its attack on women, especially poor women. The general attack on working class people is reflected in one of the highest unemployment rates in the country. These are not isolated events. The recent trial of Dr. Kenneth Edelin is an example of this threefold attack.

On October 3, 1973, Dr. Kenneth Edelin, the first Black Chief Resident at Boston City Hospital, performed a routine abortion at the request of a teenage woman. As a result of this action, Dr. Edelin was brought to trial and found guilty of manslaughter. In other words, he was charged with murder for the normal consequence of a legal abortion. The state's contention is that the fetus was viable. They claim that Edelin kept it from breathing

while still in the uterus after being separated from the mother. The verbal technicalities of the case represent only one of the many ways anti-abortion forces around the country are still trying to wipe out the 1973 Supreme Court decision upholding the right to abortion.

It is clear that this outcry of viability is just a tool to obscure the real issue. This is a political trial which clearly involves more than just one abortion. The prosecution paraded a host of self-proclaimed right-to-life activists before the all-white predominantly male jury in an attempt to conjure up anti-abortion sentiment. Thinly veiled racist attacks on the rights of poor people, and the connections between the right-to-life partisans and the segregationist "anti-busing" movement have all been evident. Thayer Fremont-Smith, a lawyer for one of the prosecution's star witnesses is involved in the anti-abortion group "Massachusetts Right-to-Life", as well as the Home and School Association, which is organizing the white boycott of schools in Boston. The American Party which polled a plurality in a recent gubernatorial election in South Boston supported the racist anti-busing forces and voiced strong opposition to the right to abortion. There is no question of whose rights they have in mind when they campaign under the slogans: against abortion, against busing, and against communism. [See "Behind the Boston Busing Crisis", *SftP*, Vol. VII no. 2, March 1975.]

We believe that the Edelin case is a direct attack on the rights of women, Third World and working class people. Women have the right to make decisions affecting their bodies and their lives. This right was fought for and won. It is absolutely necessary to defend it because abortions were taking place and will continue to take place regardless of their legality under conditions extremely dangerous to the women involved. Boston City Hospital stopped doing abortions during the Edelin trial and several other Boston hospitals have restricted their abortions to the first trimester. However, safe abortions are available to the ruling class, as they have always been, in private hospitals. This is a blatant attack on our *right* to a safe clean abortion on demand.

Dr. Edelin, a Black physician, has been scapegoated by the racists of the ruling class. His dedication to medicine and his patients, his excellent relations with the staff at Boston City are well documented by co-workers who were not permitted to testify at the trial. The blatantly racist remarks made by some jury members are indicative of the attacks on Third World people in Boston and all over the country.

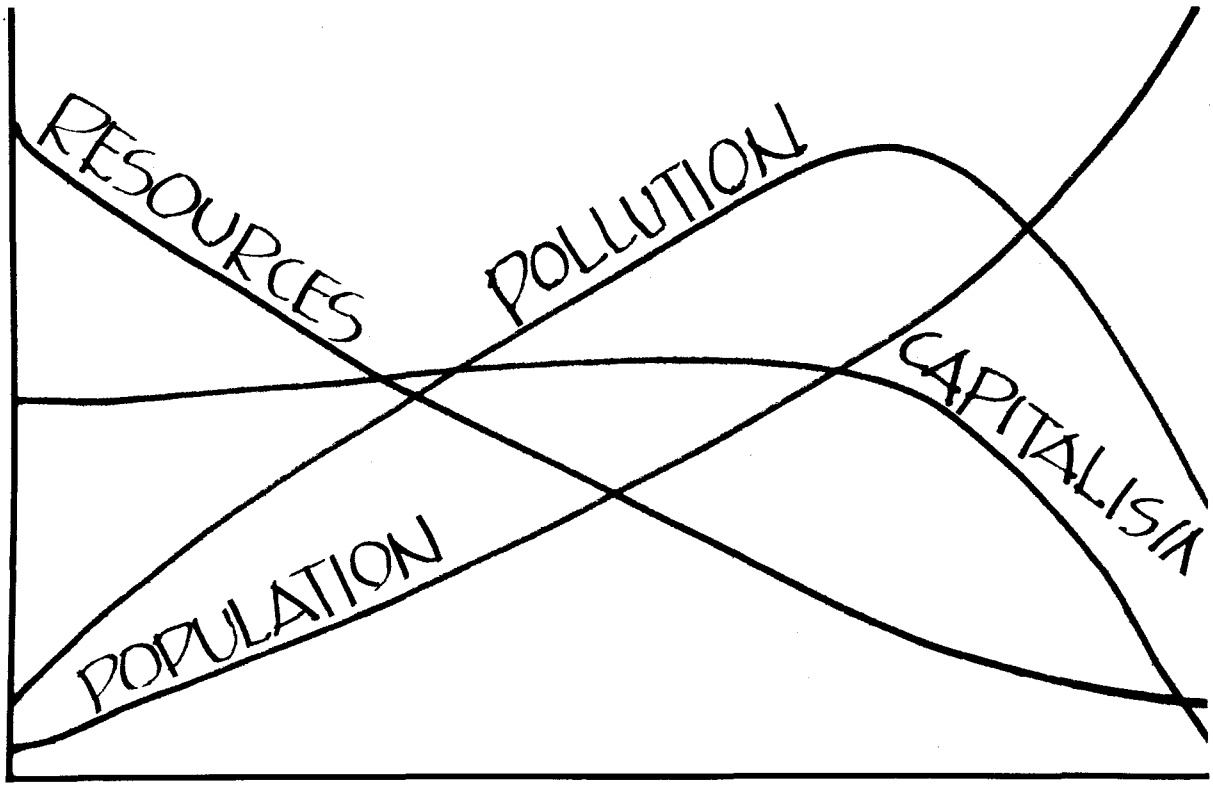
Bringing Dr. Edelin to trial has had direct detrimental effects on poor and Black patients at the hospital. Boston City Hospital is the only medical facility accessible to working class people from Boston's communities. Cutting back services there prevents people from exercising their rights.

It is necessary to examine these events in Boston in the context of the world-wide struggle against imperialism and also in the context of women's rights. Population control programs, pushed by the Ford and Rockefeller Foundations, forced sterilizations, all victimize women (especially minority women) as does the distribution of unsafe contraceptives both here and in the Third World. These strategies, and the right-to-life forces, are tools of the ruling class that decides which sectors of the population are to be controlled and how. They are fighting for their own right to life even if it means death to working class and minority women. It is imperialism, not overpopulation, which is denying so many the right to life. [Many back issues of *Science for the People* have articles on these subjects. Write to us for more information and a complete Index.]

We can be sure that this repression will come down in other parts of the country. In Boston we have been mobilizing for demonstrations in support of Edelin as well as building for a forum to take place in the Spring. The temporaty victory of the fascists in the Edelin case has served to unify us to keep fighting for our democratic rights. We *will* continue to fight and we will expose the larger issues of this racist frame-up in Boston. We will continue to fight in every part of the world until we have defeated imperialism.

Ad hoc committee on
International Women's Day

THE LIMITS TO CAPITALIST GROWTH



Contemporary Capitalism is clearly facing major problems. A cluster of interrelated crises — labeled with a variety of names: population and food, unemployment and inflation, development and investment, industrial production, energy and pollution — appear to threaten the survival of the human race, the standard of living of the industrial nations and the profits of the capitalists. Such crises are also upsetting the previous balance of power among and within the leading industrial nations. All of these problems are often presented in terms of world survival, while the real question may be whether capitalism will survive as the predominant social and economic system in the developed world.

Capitalist decision makers are urgently looking for methods to deal with these problems. Their concern is apparent in multiplying international conferences, official documents and independent studies (financed or encouraged by them) on the nature of the various crises. Solutions which would tamper with the basic economic and political institutions of capitalism, however, are unlikely to be even considered. Therefore such global concern cannot be left to the Rockefellers.

For the people who want a future free from deprivation, exploitation and pollution, an understanding of the present world crisis is vital. It is also important for several reasons to analyze carefully and thoroughly the studies carried out for the capitalist decision makers. First, failure to recognize realistic current policy options of the capitalist planners means being unaware of the multi-faceted forms of technological fix and social engineering that are in store for our society and the whole world. Second, their analysis of the various problems and of the consequences of some different policies can help to outline alternative socialist solutions (which are neither glib nor obvious). Third, if new conflicts and contradictions — which surface in these studies — explode within the capitalist system, then the previous equilibrium of economic forces, social allegiances and political alliances may be undermined and a new revolutionary potential may emerge.

These reasons have prompted the present attempt to analyze three recently published studies concerning the crisis in the world and in the United States.

Limits to Growth

The Club of Rome is a multinational group of prominent experts in management, economics and other scientific fields, with academic, political and business connections. Its founder, Aurelio Peccei, an Italian philanthropist and businessman, manages a consulting firm for economic and engineering development, affiliated with Fiat and Olivetti-Bull. Members include the head of the Battelle Institute in Geneva, the scientific director of the Organization for Economic Cooperation and Development in Western Europe and the head of the Japan Economic Research Center. Many other members are professors in various universities, such as MIT. Under Club of Rome sponsorship, Jay Forrester of MIT's Sloan School of Management became interested in applying his expertise in systems analysis, a theory of decision making developed for large corporations and urban planning, to world management. The Volkswagen Foundation (Germany's counterpart of the Ford Foundation) financed the work of an interdisciplinary team of scientists at MIT, headed by Forrester's associate Dennis Meadows, which led to the publication of *The Limits to Growth*,[1] which we will refer to as CR1.

The work of the MIT group was an ambitious attempt to go beyond mere extrapolation and develop a dynamic model of the world which could be used to forecast the consequences of different policies. The method used — systems dynamics — tries to identify the ways in which the different parts of a complex system are related and to express all of these relationships in mathematical form. For any real system, a choice must be made of the most important parts and the most important relationships, which then define the mathematical structure of the model. The latter, however, is generally so complicated that its practical handling requires a computer. The effects of changes in any part of the system on every other part can then, in principle, be calculated by the model. Furthermore, if such changes are assumed to occur in time, the development with time can be predicted for the whole system and its parts.

The model constructed by Forrester, Meadows and associates describes the world in terms of five major parts (submodels). According to the MIT group, when each part is considered separately, it displays a particular tendency. While two of them — population and industrial production — may grow indefinitely, the other three — food supply, usage of non-renewable resources and pollution — can grow only up to a maximum finite level (which is not easy to determine). The latters represent, therefore, the limits to growth on the planet.

In order to define the interactions among the five submodels and to quantify the effects of various factors on the level of each one, a vast amount of statistical, demographic, economic and environmental data was used by the MIT group. For example, the gross national product per capita in different nations (a measure of economic development) was related to the nation's birth and death rate and to the qualitative and quantitative consumpiton per capita of food, energy and minerals in each nation. Increasing levels of pollution were also related to economic (industrial) development. Thus the MIT group calculated the average global effect of economic growth in slowing down population growth and in increasing consumption and pollution. Implicit in these calculations is the assumption that world development is following the pattern of the most advanced nations, in particular, the United States.

The final model contained some one hundred relationships, quantified by using global averages. The reliability of the model was tested by starting with the global figures for 1900 and seeing if the model could predict the historical development up to 1970. The structure of the model was revised until reasonable accuracy was achieved. Global averages for 1970 were then fed into the computer and a projection forward (to about the year 2100) was made, assuming that the current patterns of development would continue in the future. The answer was that:

> *If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity.* [2]

The sensitivity of the MIT model to limited changes in some uncertain estimates (such as maximum global arable land and reserves of non-renewable resources) and to some foreseeable technological advances (for example, better birth control, pollution control and increased food yields) were tested. The answer of the computer was that final collapse was only slightly postponed and, therefore, it could not be attributed to inaccurate data or averted by technological progress. Meadows and associates feel that their model "is already sufficiently developed to be of some use to decision makers." Consequently they advocate as the only valid solution a policy of equilibrium, one which they claim is (1) sustainable without sudden and uncontrollable collapse and (2) capable of satisfying the basic material requirements of all the people. They insist that industry and population growth must stop very soon in order to achieve global equilibrium. They assert that a delay in instituting these policy changes will make it harder to attain an equilibrium state and if present trends persist up to the year 2000 an equilibrium would probably be no longer possible.

Limits to Models

Since its publication in 1972, *The Limits to Growth* has sold about three million copies in twenty-seven languages. It has prompted a considerable amount of both favorable and adverse comment. Some critics have claimed that the quality of the data used in the MIT study is poor, and that relatively small changes in the input *can* alter the predictions and considerably postpone the final collapse.[3] More important, however, ac-

cording to the MIT group itself, is the controversy concerning the structure of the model. For example, it has been argued that, first, the use of global averages is unrealistic for today's world.[4] Second, the impact of scientific and technological advances on the three critical submodels (for instance, in solving problems concerning replacement of scarce minerals, increase in food production and pollution control) has not been sufficiently taken into account.[5] Third, the model is presented as above politics and value judgments (a tendency of mathematical modellers in general), while sociopolitical choices may have important effects on the population, the economy and the environment.[6]

While the MIT group contends that its model is useful, in spite of some admitted shortcomings, another model appears to have been designed to answer most of the criticism aroused by the earlier work. This second study has been also sponsored by the Club of Rome and funded by the Volkswagen Foundation. The report has been published as a book, *Mankind at the Turning Point*[7], which contains very little technical detail. (We will refer to this as CR2.) Its authors are Mihajlo Mesarovic (US) and Eduard Pestel (West Germany), two university professors who headed a very large team of scientists mostly from these two countries.

The new model appears extremely ambitious in its structure, which is based on more than 100,000 relationships. Instead of dealing with global averages, it divides up the world into ten regions, on the basis of geographic, economic and political characteristics. Thus, once assumptions have been made for each region and for its interactions, the developed and under-developed countries, market and planned economies can then be followed separately or as a global system by the computer program (hence, probably, the enormous number of relationships). The same five material factors enumerated in the earlier study are the basis of the new world model, but in addition, the effects of some different sociopolitical choices are said to be taken into account.

Although their model appears technically quite similar to the earlier one, Mesarovic and Pestel have disclaimed the predictions of doom and the Malthusian recommendations of the MIT group. Their tone and their arguments are often explicitly political. They claim that their approach is positive and pragmatic:

> *Rather than collapse of the world system as such, catastrophes or collapses on a regional level could occur, possibly long before the middle of the next century, although in different regions, for different reasons and at different times.*[8]

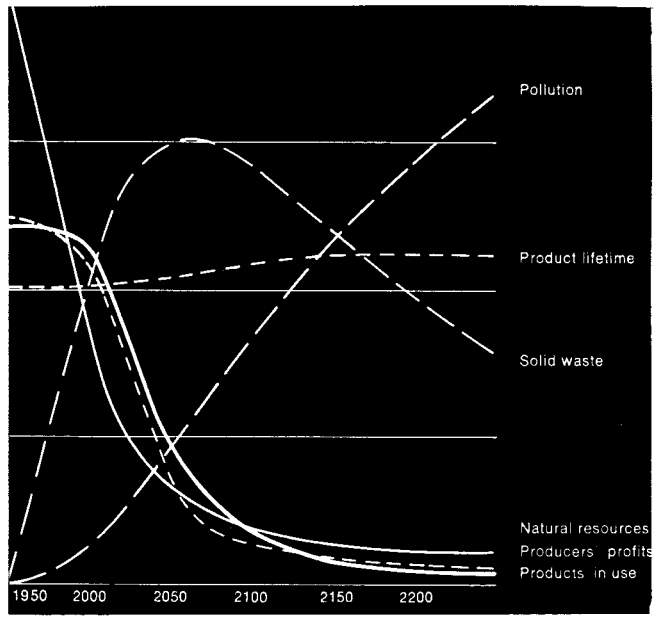
Their prescription, rather than calling for zero growth, is

> *Such a global solution [that] could be implemented only through a balanced, differentiated growth which is analogous to organic growth . . . The delays in devising such global strategies are not mental or costly, but* deadly. *It is in this sense that we truly need a strategy for survival.*[9]

Both of these reports involve two aspects: a prediction of what will happen if growth of the current kind continues, and alternative projects of the results of some policy changes. The results of the reports as far as the first aspect is concerned cannot be easily dismissed, although the time scale and the specific form of doom predicted may be open to question. Even though much of the technical criticism of such models may be significant, it is also entirely possible that the structure of these models are reasonable first approximations to capitalist world development, on which they are explicitly based. Obviously the kinds of assumptions and data fed into a computer determine the results emerging. As computer programmers like to say, "garbage in, garbage out" — or in the case of the Club of Rome studies, "Malthus in, Malthus out". There is really no need for computers to reach the same qualitative conclusions as these reports. There is no need for computers to realize that there is something wrong with a form of production which must use most of the world's resources to provide an adequate standard of living to the middle and upper classes of about one fifth of the world, and to realize that the limits to the expansion of such a system must be reached relatively soon. Thus the major shortcomings of the reports appear not to be in their prediction of limits to capitalist growth, but in their treatment of the available options of the current situation, as we will discuss shortly.

Proposals for Equilibrium

Both Club of Rome reports state that global equilibrium requires that industrial growth stop, or at least slow down, in the developed countries. While such policies are



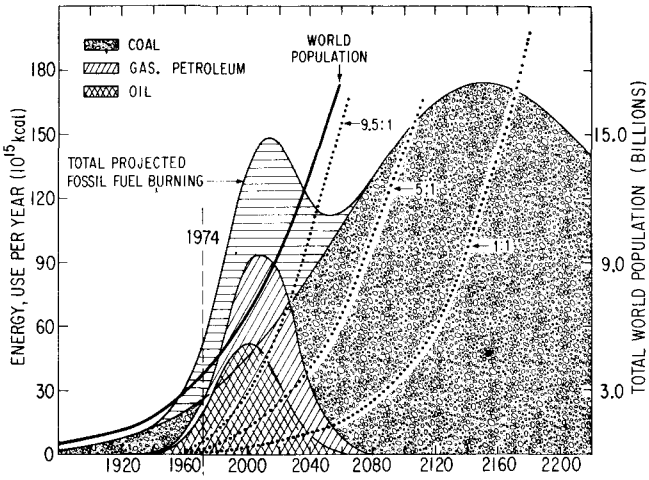
recommended their actual implementation is not discussed in detail. That a no-growth situation is being seriously considered for the United States, is shown by several other reports which do address the problem of how to approach an equilibrium state. The Ford Foundation, for example, has been interested for some time in research and planning concerning resources and energy as is indicated by its funding organizations like "Resources for the Future". Energy is both a crucial resource for real economic growth and the first one for which the global supply is escaping the control of the advanced industrial nations. The current perspectives of long term energy shortages and of enormously growing capital investments for energy supply, have now prompted the Ford Foundation to carry out its own Energy Policy Project (EPP) to explore the possible ways of limiting energy consumption.

The EPP report proposes three alternative scenarios for future energy consumption in the United States up the the year 2000. Domestic consumption of all forms of energy could rise from the present level (80 quadrillion BTU's) to 185, 118 or 100, respectively, depending on different policies to be adopted.

In the first case, the "historical growth scenario" there would be no policy change and energy use would continue to grow as in the past (about 3.4% a year). This option

> *would require very agressive development of all our possible supplies — oil and gas on-shore and off-shore, coal, shale, nuclear power. If it proved possible to increase oil imports on a large scale, then the pressure on domestic sources would relax somewhat. Still, the political, economic and environmental problems of getting that much energy out of the earth would be formidable.*[10]

In the second scenario, the "technical fix", the growth rate in energy consumption would be reduced by half. Energy saving technologies would have to be applied systematically to industrial processes, buildings and cars.



This substantial saving would still provide "a quality of life at home, travel convenience and economic growth that differ little from the historical growth scenario". It would necessitate the aggressive development of only one major energy source — oil or gas or coal or shale or nuclear power.

The third scenario, "Zero energy growth" (ZEG), while initially similar to the second, would result in a leveling off of future energy consumption. In addition to all the paraphernalia of the technical fix, this solution would require "a real break with our accustomed ways of doing things." Structural changes in the economy would be needed, like regional transportation systems, extensive materials and waste recycling, more durable products and the supplementing of fossil fuel reserves with renewable energy sources. Economic growth, however, would continue even during and after the transition to ZEG. Therefore, this perspective implies that, while the industrial growth would substantially stop in this country, a vigorous development would be sustained in education, medicine and other service areas. The EEP report is clearly in favor of this solution, but it also perceives the difficulties of reconciling it with the institutions of private capitalism. It suggests that "Government fiscal and monetary policies to maintain economic growth and full employment during the transition period would be crucial."

Since the government, however, has never arranged anything like full employment in peacetime, and since there are clearly problems in maintaining economic growth at the present time, even with growing energy consumption, the EPP proposals have an Alice in Wonderland air about them. This perception is considerably heightened by statements like:

> *. . . There is nothing inherent in the ZEG scenario which would preclude national redistribution of the 'energy income.' Those who do not have an adequate standard of living need not be stopped from achieving one because of lack of energy. Nor is*

there any inherent reasons why those in the middle to high energy income brackets would have to give up any of the things that they enjoy today.[11]

The report skims rather blithely over how energy income might be redistributed in an economy which is characterized by soaring energy prices but has never experienced anything like redistribution of monetary income, or why the planners of the Ford Foundations and their colleagues should have any strong desire for this to happen.

Technology and Society

Common to these reports is the conclusion that unrestrained economic growth cannot continue due to physical limits. We are offered the choice of curbing growth voluntarily or having it curbed for us through collapse of the system. This question of physical limits, however, is not a new one. The question of how many people the planet can support and at what level, does not have any single answer. Historical progress has been the result of technological advances and political transformations, which have been mutually dependent. The size and material well-being of human societies have ultimately been limited by the goods (food, shelter, etc.) which could be provided by the particular technological and societal forms present. Therefore, an analysis of the current forms of science, technology and social organization is crucial for any theory of growth and of its limits.

The expansion of the capitalist system, which has reached its most advanced form in this century in the United States, has been made possible by the development of "modern" science and technology and has determined such development. This historic form of science and technology grew out of the science and social organization of Europe. It was geared to maximum consumption and wasteful use of human and material resources, like the mode of production which it served and promoted. Nevertheless the spectacular technological advances which have occurred since the Industrial Revolution have caused the resource limits of the planet to recede to a degree that would have seemed impossible to many 19th century thinkers. Thus, not only were Malthusian predictions of hordes of humans kept in check only by starvation, war and pestilence not fulfilled, but a vision of unending technological progress appeared to have made the question of physical limits to growth obsolete. Such thinking culminated in the unbridled technological optimism of the two decades after World War II, when it was felt by many, especially in the United States, that one could expect

. . . An end to poverty and the inauguration of permanent prosperity, universal equality of opportunity and a radical increase in individual freedom, the replacement of work with leisure for most of mankind, . . . permanent but harmless social revolution and [characterized by, to use Daniel Bell's phrase] the end of ideology.[12]

This American dream was seriously challenged during the sixties by the Vietnam war, the growing dissatisfaction of workers and students in the developed countries and the explosive pressure of masses of people living at the margins of the "economic miracle" areas of the world. Furthermore, the spectre of pollution began to arouse the concern even of those who had reaped the major benefits of technological progress. In place of the previous technological optimism, there is now both a growing suspicion of technology for having contributed to the current crises, and in increasing dependence on technology to get us out of the mess.

With the disappearance of technological optimism, the question of the existence of physical limits to societal growth has been resurrected. It has manifested itself in various forms; a neo-Malthusian concern with population growth; a concern with finite supplies of raw materials; a prediction that the pollution levels inherent to an industrial society will prove fatal eventually; and as a special case of this last form, speculations about the "heat death" of the world — the effects of long term thermal pollution. The treatment of technology in the reports under discussion here is characteristic of the revived concern with physical limits and of the current ambivalent attitude toward technology. The reports reject technology as the solution to the current problems facing capitalism. However, they assume that technology as currently practiced will continue and furthermore, each of them assumes that some technological improvements will be necessary to implement the solutions which that particular report happens to be pushing: equilibrium, organic growth or zero energy growth.

CR1 is the most explicit in its technological assessment. Since the position with respect to technology appears to be basically the same in all of the reports, we shall take this one as representative. The position of this report on technology is summarized in the following terms:

When the World models collapse, they do so because of the accumulated costs and side-effects of technical successes . . . (and not) because we have assumed that sometime in the future technical progress will fail . . . We are uncomfortable with the idea of basing the future of our society on technologies that have not yet been invented and those whose side effects we cannot assess . . . We do not believe those technologies will be effective or forthcoming without a value change that recognizes explicit goals for and limits to physical growth.[13]

CR1 claims to have demonstrated in general, that, with forseeable technological improvements or advances, sustained economic growth is not possible. However, the political changes called for in these reports are at best minor modifications of the existing capitalist economic system. The assessment of technology is then made in the context of a capitalist society and the projected technological development is limited by this context.

In making its technological assessment, CR1 assumes for the world model that currently available technologies will continue to be used as they are at present. Then, in alternative computer runs, it includes "technologies which are possible but not instititutionalized", that is, technologies which are direct extensions of currently utilized ones. Thus, in considering both present and future technologies, the limitations imposed by the present social system can be seen.

In restricting its perspective to the capitalist mode of technology and economic growth, CR1 neglects the possibilities for immediate amelioration of some problems and for a more rational and equitable use of resources. As examples, the vast amount of technological skill and resources currently going into the military industry, into research on increasingly sophisticated weapons and control devices, into creating superficially different products for advertising purposes, or into the leisure and luxury industries could be diverted to more constructive purposes. Such conversions would also help relieve some shortages in investment and raw materials, and perhaps some strain on the environment. Yet, the possibility of such a change is not considered, much less the political and social conditions under which it could take place. The same limitations appear in considering possible future technologies. For example, there is no consideration of developments in mass transportation which give maximal fuel efficiency and minimal environmental impact; or of new conceptions in medicine and health care distribution which are emerging in the People's Republic of China (and are also being attempted on a very small scale in this country).

Since these reports have limited themselves to a technological assessment within capitalism, their pessimism about the possibilities for much help from technology appears to be well-founded. In fact, all of the reports may be seriously underestimating the *problems* which may arise due to technological development under capitalism. Barry Commoner[14], for example, has argued convincingly that technology in a "free market" economy may be substantially incompatible with environmental integrity. The reason for such incompatibility, according to Commoner, is that the pressure for higher profits has pushed new, generally more polluting, technologies. The profitability of these new technologies is maintained by charging the environmental costs (the negative externalities) to society as a whole. This means that a rational balancing of the benefits and problems associated with new technologies is never done.

"Folks say that on nights like this, when the air is still and the humidity high, the ghost of Henrick Hudson can be seen throwing up behind that bush."

Thus, all the reports that we have examined make a rather convincing case for the necessity of curbing capitalist industrial growth, whereas they do not attempt to explore alternative options. In an economy geared to increasing capital accumulation through increasing industrial production and material consumption, the "physycal limits" are clearly not dictated by physics. Such a society must obviously generate overpopulation, scarcity and waste of both human and material resources. The accommodation of capitalism with such "physical limits" will have to be at the expense of human development. On the other hand, a society characterized by a socially rational use of resources and technology would, while recognizing the possible existence of physical limits, continually work to avoid colliding with them. At the same time, such a society would attempt to overcome the social limits — the institutional economic and cultural heritage of capitalism — to fee human development.

A New Global Capitalist Order?

The reports we have discussed are presented by groups which picture themselves as above politics, looking for neutral solutions to the crises which their computers predict. The CR1 report is ostensibly addressed, for example, "to all men and women of good will" and they say further:

> *We believe that an unexpectedly large number of men and women of all ages and conditions will readily respond to the challenge and will be eager to discuss not* if *but* how *we can create this new future.*[15]

In reality, theories of growth, no-growth, "organic growth" or zero-growth cannot be above national and international factions. It seems likely that these reports represent the views of particular sectors of the capitalist world and that the solutions proposed represent the interests of these sectors. The real interests of the Club of Rome appear to be concerned with global capitalism. Indicative of this, and of its approach to finding solutions, is its call in *Limits to Growth* for

> *. . .the creation of a world forum where statesmen, policymakers and scientists can discuss the dangers and hopes for the* future global system without the constraints of formal intergovernmental negotiations.*(Emphasis added.)*[16]

Continued on page 34

CONCERNING THE INF

MARIE FARRAR

Marie Farrar, born in April,
No marks, a minor, rachitic, both parents dead,
Allegedly, up to now without police record,
Committed infanticide, it is said,
As follows: in her second month, she says,
With the aid of a barmaid she did her best
To get rid of her child with two douches,
Allegedly painful but without success.
But you, I beg you, check your wrath and scorn
For man needs help from every creature born.

She then paid out, she says, what was agreed
And continued to lace herself up tight.
She also drank liquor with pepper mixed in it
Which purged her but did not cure her plight.
Her body distressed her as she washed the dishes,
It was swollen now quite visibly.
She herself says, for she was still a child,
She prayed to Mary most earnestly.
But you, I beg you, check your wrath and scorn
For man needs help from every creature born.

Her prayers, it seemed, helped her not at all.
She longed for help. Her trouble made her falter
And faint at early mass. Often drops of sweat
Broke out in anguish as she knelt at the altar.
Yet until her time had come upon her
She still kept secret her condition.
For no one believed such a thing had happened,
That she, so unenticing, had yielded to temptation.
But you, I beg you, check your wrath and scorn
For man needs help from every creature born.

And on that day, she says, when it was dawn,
As she washed the stairs it seemed a nail
Was driven into her belly. She was wrung with pain.
But still she secretly endured her travail.
All day long while hanging out the laundry
She racked her brains till she got it through her head
She had to bear the child and her heart was heavy.
It was very late when she went up to bed.
But you, I beg you, check your wrath and scorn
For man needs help from every creature born.

She was sent for again as soon as she lay down:
Snow had fallen and she had to go downstairs.
It went on till eleven. It was a long day.
Only at night did she have time to bear.
And so, she says, she gave birth to a son.
The son she bore was just like all the others.
She was unlike the others but for this
There is no reason to despise this mother.
You, too, I beg you, check your wrath and scorn
For man needs help from every creature born.

ANTICIDE,

Accordingly I will go on with the story
Of what happened to the son that came to be.
(She says she will hide nothing that befell)
So let it be a judgment upon both you and me.
She says she had scarcely gone to bed when she
Was overcome with sickness and she was alone,
Not knowing what would happen, yet she still
Contrived to stifle all her moans.
And you, I beg you, check your wrath and scorn
For man needs help from every creature born.

With her last strength, she says, because
Her room had now grown icy cold, she then
Dragged herself to the latrine and there
Gave birth as best she could (not knowing when)
But toward morning. She says she was already
Quite distracted and could barely hold
The child for snow came into the latrine
And her fingers were half numb with cold.
You too, I beg you, check your wrath and scorn
For man needs help from every creature born.

Between the latrine and her room, she says,
Not earlier, the child began to cry until
It drove her mad so that she says
She did not cease to beat it with her fists
Blindly for some time till it was still.
And then she took the body to her bed
And kept it with her there all through the night:
When morning came she hid it in the shed.
But you, I beg you, check your wrath and scorn
For man needs help from every creature born.

Marie Farrar, born in April,
An unmarried mother, convicted, died in
The Meissen Penitentiary,
She brings home to you all men's sin.
You who bear pleasantly between clean sheets
And give the name "blessed" to your womb's weight
Must not damn the weakness of the outcast,
For her sin was black but her pain was great.
Therefore, I beg you, check your wrath and scorn
For man needs help from every creature born.

—Bertolt Brecht

SCIENCE & TECHNOLOGY IN BRAZIL

On July 25, 1973, the Brazilian President General Medici approved the "Basic Plan for Scientific and Technological Development" for the period 1973/1974.[1] According to the Minister of Planning, "the main task of the Plan (PBDCT) is to have modern science and technology serve Brazilian society, in its objectives of development and greatness". In fact, the military government will spend 700 million dollars for this plan, with a promise of future increases; this can be compared to 17 million dollars a year spent in the same sector five years ago.

At the same time, the dictatorship is eager to announce the astonishing increase in the number of university students during the last decade: from 142,000 to 688,000. In the same period, the number of teachers increased from 30,000 to 66,000. The content and intent of this education is not mentioned. There is no doubt that the sleepy and anachronistic scientific, technological and university systems of the 50's and early 60's are about to suffer a big impact.

The purpose of this article is twofold. First, to make an analysis of the Brazilian dictatorship's sudden interest in science, to see who benefits from it, and to show what hardships it brings to the majority of Brazilian people. Second, to stimulate everyone to discuss the subject more deeply and formulate a progressive line of action with respect to science and technology.

The Recent Development of Capitalism in Brazil

It is important to interpret the "technological boom" as a consequence of the recent development of the productive forces in Brazil.

Since 1971, the Brazilian and foreign press have been giving a lot of attention to the so-called Brazilian economic miracle. At the international level, this has contributed to improving the image of the military dictatorship abroad, as well as stimulating external investments in Brazil. (The political situation is "stable" and the returns in profits are greater than anywhere else.) But by now it is well known what this "economic miracle" really is and whom it has benefited. The indicators of such a miracle are: the growth of the gross national product at an annual rate of about 10% since 1968, the reduction of the inflation rate starting in 1964, and an enormous increase in exports. Yet during the same period of time, the child mortality rate in Sao Paulo, the country's most developed state, has also increased by 10%.[2] [See box p. 23]

This economic growth was achieved by creating attractive conditions for investment by foreign capitalists and corporations and also by continually reducing the real salaries of the Brazilian workers. The reduction in real wages as well as the almost non-existent environmental protection legislation have been instrumental in persuading foreign companies to build factories in Brazil.

In order to understand the current interest of the Brazilian military dictatorship in science and technology, the classic idea of "cultural imperialism"[3] is insufficient. Obviously cultural imperialism is being used by the international bourgeoisie to manipulate the Brazilian people.

The interaction with North American "centers of excellence" is stronger than ever, as is shown in a letter of invitation sent to major U.S. universities announcing faculty positions in the Physics institute of a Brazilian University [See box P. 24] What is happening now is that the desire for increased bargaining power by some sectors of the Brazilian bourgeoisie has led to a drive for research and development within Brazil. The goal is to "put Brazil, within the period of one generation, in the category of developed nations" through a "modern, competitive and dynamic economy". The (1972/1974) First National Development Plan recognizes that "the international technological revolution has a big influence over industrial development and international commerce; economic growth becomes more and more determined by technological progress". Studies by government planning institutions (IPEA/IPLAN) point out that "the absence of internal production of 'know-how' reinforces the dependency of Brazilian production on foreign technology". Indeed this dependency cost Brazil, during 1973 alone, $400 million, which is obviously too much for an economy with an increasing deficit in its balance of payments.

The need for a home-made technology to develop a national capitalism emerged from these and other studies, and the final result was the PBDCT (1973/1974).

REAL WAGES

In order to control wages the old-fashioned process of class struggle was replaced by a "scientific" formulation and solution to the problem. The adjustment of wages due to inflation is calculated by a complicated mathematical formula, constructed by the present Finance Minister Simonsen, formerly known for his facilities as a mathematician, Italian Opera freak and whiskey drinker.

The formula looks like this:

$$w_{n+1} = 0.5[w_n + w_{n-1}][1 + r_{n+1}][1 + 0.5i_{n+1}]$$

w_n is the real wage during the past year.

w_{n-1} is for the year before that.

r_{n+1} is the productivity increase anticipated for the coming year.

i_{n+1} is the rate of inflation anticipated for the coming year.

w_{n+1} is the wage allotted for the coming year.

Anyway, the key to the formula is the forecasted inflation rate for the one year period of effect of the new wages—which is always smaller than the inflation rate that actually happens. This is the spirit of the so-called indexing technique of monetary correction. There are indications from the press that the American working class is going to receive the same recipe. Let's compare the official forecasts and official effective inflation rate released by the Getulio Vargas Foundation one year later:

YEAR	FORECAST	EFFECTIVE INFLATION RATE
1966	25%	45%
1967	10%	30.1%
1968	15%	21.5%
1969	15%	21.1%
1970	15%	21.3%
1971	12%	20%

This way, with the effective help of "pure," "cold," "impartial" and "fair" mathematical computation, the real wages of the workers are going down and down.

According to the Getulio Vargas Foundation and DIEESE, the real minimum wage fell 50% in Rio de Janeiro from 1958 to 1973, and almost 70% in Sao Paulo. In December 1965, a minimum wage worker needed 87 hours of work to buy one month's worth of subsistence level food. In March 1974, he needs *177 hours* of work to buy the same amount of food. This doesn't include housing and transportation, not to mention education and medical care for the family.

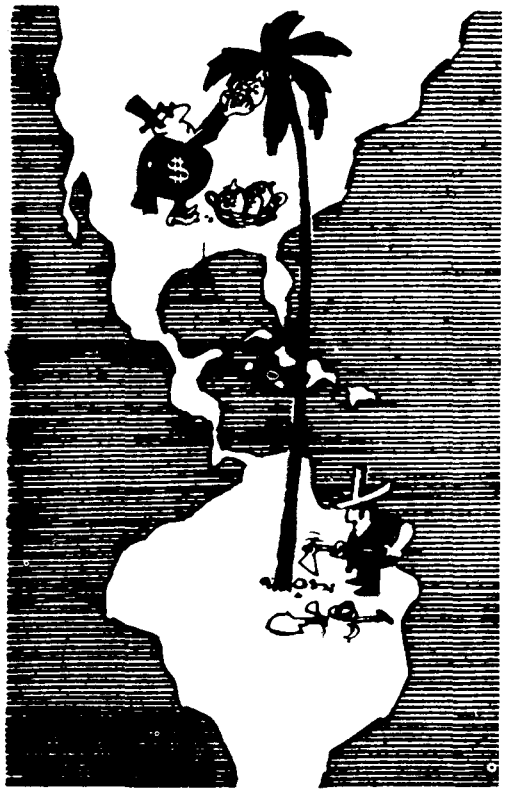
Income distribution analysis leads to the following conclusions: 80% of the poorer strata of the population in 1960 received 46% of the total income; this percentage fell to 37% at the beginning of the seventies. On the other hand, 20% of the wealthier strata in 1960 received 54% of the total income; at the beginning of the 70's the figure had grown to 63%. Of this 20%, 5% alone, the richest, saw their share grow from 27% to 36%. And the 1% of the richest of the richest, saw its participation soar from 12% to 18%.

The real economic miracle is that the Brazilian workers are surviving. They are not fooled by technocratic mysticism, and keep struggling in spite of the violence of the dictatorship's repression which imprisons, tortures, and kills hundreds of them each year.

JOB HUNTING?

. . . the Institute has at present 7 Ph.D's (four are Brazilians and all of them had at least one year of post-doctoral experience abroad) and 8 M.Sc.'s. Before the end of 1973 we hope to hire at least four more Ph.D's. We are also expecting in 1973 visits, with periods ranging from one to six months, of senior researchers. . . Your duty here would be to help in the orientation of Ph.D. theses, suggest and supervise M.Sc. theses, and teach graduate courses and give advanced topics in seminars. Also we need your enthusiasm and ideas for general educational, scientific and human problems. The positions available are associate and full professorships, with a monthly salary equivalent to US$1,000.00 to $1,300.00 for 13 months a year [the 13th is paid at Christmas time]. . . . I must add that most foreigners find life here very pleasant. The beaches are definitely among the best in the Country! Although the region is still quite poor one can live comfortably in . . . Three bedroom apartments can be rented for US$100.00 to $200.00. Medical services are good but almost as expensive as in the United States. Transportation and other services are very cheap. There is an American School which teaches in English and Portuguese and follows American programs and calendars.

—letter from a Brazilian university



The Plan for Science and Technology

An examination of the budget of the Basic Plan for Scientific and Technological Development (PBDCT) will show how it will fulfill the needs of the Brazilian ruling class instead of solving the real problems of the people: chronic malnutrition, endemic tropical diseases, unemployment, lack of medical care, illiteracy, poverty.

The budget of the PBDCT — $700 million — will be used as follows:

- *28% — Industrial Technology*

  Through this, the largest percentage allocated to a single area, the PBDCT gives direct assistance to the capitalists in order to "keep the high levels of national economic development rate". The dictatorship's strategy of development requires the continuous increase of exports, with simultaneous elevation of the "technological content of the exported goods". Thus it is explicitly stated that the project is to a great extent aimed at the *external market* and not at the Brazilian people's needs. Included in this program are armored cars and tanks, a joint project of the army with the automobile industry, and portable bridges "to be used mainly in military operations", a joint project of the army with the civil engineering industry. There is no need to explain that this is connected with anti-guerrilla and imperialist activities in Latin America. In addition, the program is designed to increase the production of export goods such as meat, soy beans, coffee, sugar and cotton. Production of export goods does not increase the intake of calories and protein by the undernourished Brazilian people.[4]

- *10% — Infrastructure Technology*
  This infrastructure, necessary to a growing capitalist system, e.g., energy (hydroelectric, nuclear, oil), transportation and communications systems, is being built with no regard to the ecology or to the social conditions of the workers and the people living in the regions being developed. The extermination of the Amazonian Indians in the process of building the strategic trans-Amazonian highway is a concrete example.

- *4.9% — Support Activities*
  These activities will provide the necessary bureaucracy to receive, deal with and spread in a systematic way the up-to-date scientific and technological developments, giving the bourgeoisie better control over the data, hence increasing its control over the population. For instance, there is being created a bank of socio-economic data including information about housing, work power, migrations, fertility, etc. Another bank of data will provide technological assistance to private Brazilian and foreign industries. Included in this allotment are provisions for close international "cooperation", mainly with the U.S. Agency for International Development (USAID), Germany, England, France and Japan.

- *2.6% — Technology Applied to Social Development*
This ridiculously small percentage of the PBDCT, allocated to the fundamental problems of health and education, is not going to solve them, but is actually part of the needed industrial infrastructure. The health program is necessary to keep the people barely alive and provide workers to the industries. The interest in cures for Schistossomosis, Chagas disease and Bubonic pest coincides with reports on the shortage of labor power in Sao Paulo. The Educational Technology Program will provide semi-literate instead of illiterate workers to the factories. At the same time, the audio-visual technology will delivery huge amounts of government propaganda to the classroom as well as through the radio, TV, movies and the press. However, this expenditure on propaganda measures the extent to which the people are smart and know what's going on.

- *2.1% — Special Integrated Projects*
The purpose of these projects is to incorporate "unexplored lands" into the productive process. The Amazon Forest, the *cerrados* region and the *municipio Aripuana* will be affected through integration, development and colonization organized by private companies, but at the expense of the sweat and blood of the hard-working Brazilians, mainly Nordestinos (from the North East of Brazil). The consequences of this policy are of public knowledge: the extermination of Indians and the plundering of the natural resources of the land.

- *2.9% — Planning and Programs Being Studied* (No description given).

The basis of the PBDCT is the same as that of the whole "Brazilian model"; that is, the Brazilian working class must pay for research and development that will benefit the capitalists. Two recent declarations in the Brazilian magazine *Visao* [5] are worth quoting. According to commandant Thomas Thedim Lobo, president of the Industrial Planning Institute, "technology is the application of scientific knowledge, including the scientific method, to the conditions of production and consumption markets, to maximize certain goals. In economic systems of free enterprises, as for example ours, the objective to be maximized is the *profit of the entrepreneurs*". According to Giordano Romi, of the Administrative Council of Romi Industries S.A., one of the first Brazilian companies to develop know-how in the sector of equipments, "the Companies wanting to develop their own projects involving new technologies would be allowed to deduct from their operational receipts, as far as income tax is concerned, a value corresponding to three times the global cost to the total execution of the project". It is obvious, then, that the use of science and technology depends on which class has political power. Since the military dictator now in power represents the bourgeosie, the PBDCT is a basic instrument for *their* strategy. To oppose it, the progressive forces in Brazil should write a program of their own, in which science and technology will benefit the people.

Brazilian Militarism

One important outcome of the current scientific and technological plan is the growth of militarism. The military projects in the PBDCT will develop military power in Brazil with two purposes: one, to protect the bourgeoisie and emerging sectors of the middle class that benefit from the recent capitalist growth, and, the other, to protect Brazilian economic interests [6] in Latin America, including repression of popular revolutions in neighboring countries.

According to a recent issue of the Brazilian Embassy Bulletin, Brazil is negotiating to sell armored cars, an operation worth over 100 million dollars, to the Qatar emirate. These vehicles travel 110 km/hour over any type of terrain. They will be equipped with gun towers and infrared detectors. The same company involved in this deal, Engesa, is planning to sell those armored cars to Chile, Paraguay, Bolivia and South Korea. The type of research mentioned in the plan, such as armored cars, airplanes and hovercrafts, is clearly the sort required for building up an intervention army.

Alienation and Brainwashing

The participation or non-participation of the Brazilian scientist in this "economic miracle" is a question of great importance. Until recently one could say that the scientists were excluded from the productive sectors of the economy; isolated and alienated, they were easy preys to cultural imperialism. Many emigrated to research centers of advanced capitalist countries, and those who stayed in Brazil were doing a science with no application in the country. With the economic boom from 1968 on, the situation became more complex. Now the PBDCT plans to integrate scientists into the new stage of capitalist development. This does not mean that Brazilian science will work towards the people's needs. On the contrary, it will serve the interests of the Brazilian bourgeoisie associated with international imperialism.

Indeed, there is an enormous participation and control by foreign capital in fundamental sectors of the economy. [See box p. 26.] Profit rates for foreign investors in Brazil are among the highest in the world. According to British capitalist Rothschild, "Brazil is the paradise for investors." Due to the growing external debt, strategic resources will be exported at very cheap prices. From 1970 to 1980, Brazil will be one of the biggest mineral exporters.

What is the reflection of this economic situation in the scientific sector? It is the coexistence of two types of science in Brazil. On one side, cultural imperialism will still be guiding the elites in the "pure sciences". On the other hand, the applied sciences will serve the big Brazilian and multinational corporations.[7]

FOREIGN CONTROL OF BRAZILIAN ECONOMY

Foreign Capital in Brazil on June 30, 1973

Source: Banco Central do Brasil (quoted in *Veja,* number 289)

IN U.S. $ MILLIONS

USA	1455
Germany	523
Switzerland	327
Canada	322
England	315
Japan	232
France	213
Panama (!)	106
Holland West Indies (!)	92
Holland	91
Luxembourg	86
Sweden	72
Belgium	65
Bahamas (!)	42
Italy	33

Besides the alienation of the scientist, science is used for ideological alienation of the people, through massive propaganda used by the military dictatorship. Following the example of the North American government, which intensified its bombing against the people in Vietnam during each space trip, the Brazilian dictatorship uses each "scientific advance" for self-promotion, such as rocket experiments for the modernization of the mail service, computer centers to computerize the official Sports lottery racket, automobile race victories, and so on. These are attempts to shift the attention of the people from their real problems. The dictatorship is fearful of the conscientization which will lead to its overthrow. Brazilian science is obviously not directed to solve any fundamental problem of the majority of the people. Its priorities are completely alienated from them. Moreover, it serves to legitimize an unlawful regime which manipulates it.

The ideology imposed in the universities by the present bigshots of Brazilian science consists of the importation of the scientific ethics from advanced capitalist countries. Brazilian scientists are required to seek contact and approval from the scientific community of those countries. Such approval, of course, is dependent on their acceptance of the capitalist scientific ethic of the neutrality and apolitical nature of science, which includes the belief that research (pure Physics, Mathematics and Chemistry) is good for everybody. They are also expected to defend "academic freedom" as it is understood in the bourgeois society, that is, the freedom to choose the research of your own choice, even if irrelevant or racist. Implicit in this is a denial of the relationship between science and social problems. Brazilian scientists are expected to adopt elitist attitudes and obey the "commandments of elitism":

- Knowledge is private property.
- Theory is above everything else.
- Science is competition for personal fame and power.
- Superiors must be flattered; students must be forced to trail behind at a snail's pace.
- This same ideology must be transferred to the students who survive the university obstacle race.

Scientists in Brazil rationalize their non-participation in democratic struggles because, being "prepared persons", they should preserve the "flame of knowledge" and the "technological skill" until after social changes occur. At the same time, of course, they participate in and profit from the "economic miracle", through consulting, high salaries, industrial and military research, writing books for McGraw-Hill of Brazil, etc.

But the truth is that most Brazilian scientists do not have a chance to choose how and to whom to direct their knowledge and creativity. Political and socially directed activities are forbidden and repressed. For example, Brazilian law pertaining to schools and universities (decree 477) states that: teachers, students and employees of educational institutions who participate in strikes, destroy property (inside or outside of schools), participate in street marches and unauthorized rallies, or distribute "subversive material", will be punished by the following penalties: professors and employees will be summarily dismissed, and banned from employment in any other educational institution during a period of 5 years; students will be expelled and banned from matriculating in any other educational institution during a 3 year period. If the student is on a scholarship, he/she shall lose it and become ineligible for any scholarship aid for a period of 5 years (if a foreigner, the scholarship student will be expelled from Brazil).

Decree 477 was issued early in February 1969. It came as an answer to mass demonstrations of protest against the dictatorship under student leadership, which took place during 1968 in all major Brazilian cities.

On one side the dictatorship coopts scientists with high salaries and resources. On the other side they must comply with the U.S. standards of productivity, competition and self-censorship.

It is the task of all Brazilian students, teachers and staff to organize themselves to fight against the misuse of science, by joining the fight of all the oppressed Brazilian people towards their liberation.

— Maurice Bazin and
Brazilian comrades

FOOTNOTES

1. PBDCT—Plano Basico de Desenvolvimento Cientifico e Technologico 1973/1974, Presidencia da Republica, Junho de 1973 (Servico Grafico Fundacao IBGE)
2. *Veja*, (the Brazilian equivalent to *Newsweek*) number 295, 1974 (April Editorial).
3. *In addition to the many activities.... which are directly related to U.S. economic gains, there is a vast network of supporting activities which limit the options of the Latin American peoples for alternatives to foreign domination. These affect education, mass media, organized labor, community relations, etc., and, though much more subtle, still constitute imperialism—cultural imperialism. The ultimate effect is to give the U.S. supreme voice in the internal and cultural affairs of these countries.*

   Cultural imperialism has two separate but related elements. One is the spread of an ideology and the other is the emulation of foreign cultural forms and their substitution for the native culture.

   Porque?: Science and Technology in Latin America, Science for the People, 1973.

   See also the articles by Maurice Bazin (Rutgers University, New Jersey 08903): "Science, Technology and the People of Latin America" in *Perspectives on Latin America* (S. Baily, ed.) MacMillan, N.Y., 1974 and "Pure Science and Cultural Imperialism in Chile" in *Rape the Sun* (J. Carew, ed.) Third Press, N.Y., 1974 and in *Les Temps Modernes*, March 1973, Paris. See also Oscar Varsarsky's *Ciencia, Politica y Cientificismo*, Centro Editor de America Latina, Buenos Aires, 1969.
4. The similarity of this project with the Green Revolution is quite clear. The Green Revolution is a recently developed form of agriculture based on high yield varieties of wheat and rice, developed in Latin America by the Rockefeller foundation, Ford foundation and AID. The analysis in *Por Que?*, published by SESPA, 9 Walden St., Jamaica Plain, Mass. 02130, December 1972, applies here.
5. *Visao*, February 11, 1974.
6. Some examples: Brazil-Bolivia oil and gas exploration; Brazil-Colombia coal exploration; Brazil-postcoup Chile negotiations about Chilean copper and coal; Brazil-Paraguay Itaipu hydroelectric and cattle raising business. The consequences of the eventual concretization of the hydroelectric plant will be the creation in the Parana Plata basin of a situation similar to the Panama Canal zone.
7. As quoted from *Visao*, February 11, 1974: "The proof of the high quality of our services", says Angela Pompeu, director of the Brazilian Technological Information Center, "is the interest, including from big international corporations that have research laboratories and highly trained people of their own, to get information and suggestions from our staff."

WILL THE REAL CRISIS...?

BOOK REVIEW: The "Energy Crisis" and the REAL Crisis Behind It.

Did someone say the "energy crisis" is over? The panic may have passed with the fall in gasoline prices from last year's high, but in the near future new price increases are likely to be announced. This will not be a particularly surprising turn of events to those who have a good grasp of what's happening in the energy business. But for those who don't, United Front Press' booklet, *The "Energy Crisis" and the REAL Crisis Behind It*, makes compelling reading. This lively, well illustrated, factual booklet provides a basic understanding of the economic and political forces at work in the energy arena. It brings together, in easily digestable form, the various facets of the energy question.

The "Energy Crisis" and the REAL Crisis Behind It
Dave Pugh and Mitch Zimmerman, graphics by Gar Smith. Published by United Front Press, June 1974.

Beginning with convincing evidence that the "energy crisis" was in reality a profit crisis for the oil monopoly — the oil shortages were contrived by simply witholding oil from the market — the booklet traces the historical developments leading to the oil monopoly's falling rate of profits (20% in the 1950's, 14% in 1960, 8.7% in 1972, and then up to 15.1% after the declared crisis on 1973). A major factor has been the struggle for Mideast oil. The booklet describes the role of international capitalist competition in undermining the position of the big 7 (Exxon, Mobil, Texaco, Gulf, Standard of California, Shell, British Petroleum), especially in the face of the ever more independent and militant stance on the part of some of the oil-producing countries. The Palestinian Liberation struggle has been a main driving force behind this stance, giving rise to the October 1973 war which catalyzed the skyrocketing of crude oil prices in the Mideast at that time.

Following this historical sketch, the booklet delves more deeply into the economic consequences of declining rates of profit, domestically and internationally, and stresses the pivotal role the Middle East will play in coming years (Mideast oil accounted for 60% of the big oil companies' profits in1973 even though it amounted to only 13% of oil used in the U.S.). What emerges from this analysis is that the options of the oil monopoly are limited, that its strategy for the future will almost necessarily involve suppressing popular liberation movements in the Mideast through military and/or CIA intervention while at the same time putting the squeeze on working class and poor people in the U.S. through vicious price hikes. Sound familiar? The profit crisis in oil is obviously but one part of a developing economic crisis for the capitalist system as a whole.[1]

The concluding section of the booklet deals with strategies of opposition to the oil monopoly. After analyzing the deficiencies of nationalization, anti-monopoly legislation, and taxation reform strategies, the authors describe some of the more progressive struggles which have been waged by working class and poor people: opposition to utility rate increases, as exemplified by the Georgia Power Project and many similar struggles (see "Power Belongs to the People," *SftP*, vol. VI, no. 4, July 1974); the strike last winter in West Virginia of 27,000 miners, who forced the governor to release sufficient gasoline supplies for miners to get to and from work; tenant actions against landlords not providing adequate heat; the independent truckers strike of February 1974; opposition to the importation of cheap coal from racist South Africa; and actions in support of Mideast liberation forces. All these struggles, in conjunction with those in western Europe (for example the British miners' strike) and in the Third World (for example the fight against the building of a huge superport/refinery in Puerto Rico), constitute a broad based attack not only on capitalist control of energy, but on the capitalist system as a whole.

The comprehensiveness and general anti-capitalist and anti-imperialist orientation of this booklet makes it much more widely useful than other books now available on the "energy crisis". For example, a study sponsored by the Marine Engineers Beneficial Association (AFL/CIO), called *The Energy Monopoly: Failure of Anti-Trust Policy*, probes in depth the monopoly structure of the oil industry and its control of other energy resources (we should call it the *energy* monopoly). However, after hammering home the failure of anti-trust policy since time immemorial, the book concludes that what is necessary now is — you guessed it — more anti-trust policy. Similarly with (head of the Communist Party U.S.A.) Gus Hall's book, *The Energy Rip-Off*, which also fails to transcend electoral politics.

The principle weakness of the United Front Press booklet is that it does not deal adequately with the political significance of high energy consumption *per se*. While it does show that increased energy prices — to maintain high profit rates — are an attack on the working class, it does not make clear that the use of energy in a capitalist economy is, in itself, a weapon of class struggle.

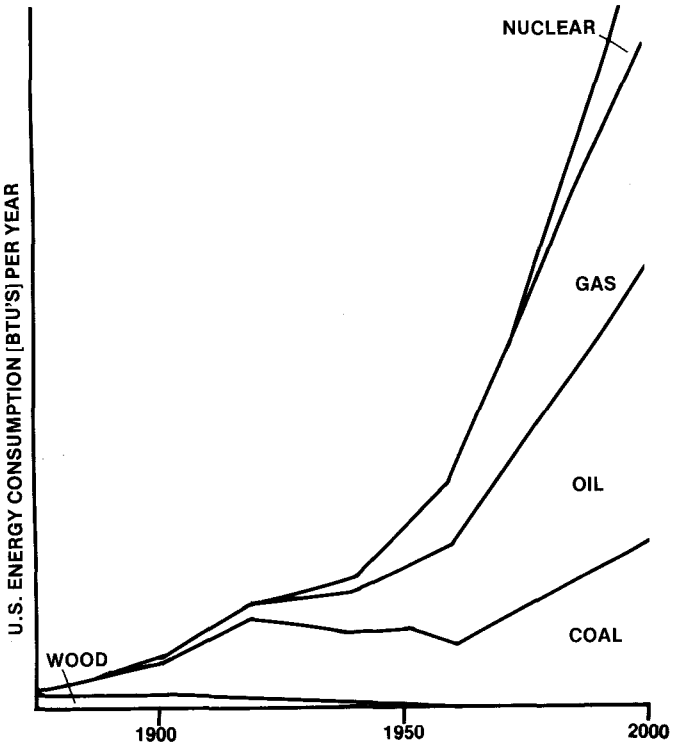
For example, the use of energy in the process of production means the substitution of fossil fuels (or nuclear fuels or whatever) for human labor power. This means the use of machinery to achieve increased productivity, which under capitalism amounts to increased exploitation* of workers and, further, to growth in the concentration of capital (and economic control) in the hands of the capitalists. Historically, this drive for increased productivity and for the expansion of capital on the part of

*According to Marx's theory of surplus value, "exploitation" means the portion of time workers work to produce profit for the capitalists (surplus labor) as compared to the portion of time they work to produce the goods necessary to sustain the workforce (necessary labor). Increased productivity amounts to an increase in the extraction of surplus value from productive workers.

the capitalist class has meant the periodic crises of overproduction (like the depressions of the 1930's and 1970's) characteristic of the capitalist mode of production. What this means in human terms is unemployment and deprivation for the working class, assaults on unionized labor, poverty, the denial of democratic rights, and war.

Yet the massive consumption of energy in the U.S. is hailed in the newspapers and in oil and utility company advertisements as an index of our high standard of living! Since World War II total energy consumption in the U.S. has continued to skyrocket (see graph) despite a downturn in the growth of population, and despite the fact that since 1965 at least, real wages have been on the decline. How then, can the high energy demand be attributed to excessive individual consumption?

The answer: only by ignoring the system of production itself, by ignoring, for example, the fact that a huge part of the increase in energy consumption in the U.S. is absorbed in the production of purposely short-lived goods (planned obsolescence), not to mention such colossal waste as the Indochina War or the space program. We have a situation in which, say, two cars are produced to last as long as one good one could — thus to meet the same need, twice as much energy and material resources



(graph from *Scientific American*, Sept. 1971.)

U.S. Energy Consumption since 1875. Note the increase in the rate of consumption beginning with the industrial production of W.W.II and the even steeper rise of the 1960's. The curve for the period 1970-2000 follows predictions of demand made by the government and energy monopolies and is based on the assumed continuance of a healthy capitalist economy!

are consumed. This decrease in the quality of goods erodes whatever gains have been made through labor struggles by decreasing the buying power of the working class as a whole. So increased energy consumption in the capitalist system is not only tied to the exploitation of workers directly but also to the production of waste and junk this same working class is *forced* to buy in order to survive.

Take food for example. People do not consume more or better food than, say, thirty years ago. In fact, most processed food is nutritionally deficient (this is well documented especially in the case of breakfast cereals, hot dogs, and baby foods). Food prices are on the rise. At the same time, the amount of energy consumed in the growing, processing, transportation, and marketing of food has been increasing rapidly. Since 1940, for example, the energy required to produce each calorie (the calorie is a unit of food energy) of food consumed in the U.S. has more than doubled. This consumption of energy has been in production of farm machinery, gasoline, fertilizers, food packaging and processing, etc. All that frozen, artificially flavored and preserved, precooked, plastic wrapped shit is no cheaper or more nutritious, even for all the energy consumed in producing it! Quite the contrary. But Tenneco, ITT, Del Monte, etc., etc., have a stronger monopoly, a better controlled, vertically and horizontally integrated machine for amassing profit. Thus, the increased energy consumption associated with food is not an index of increased nutritional consumption on the part of the people; it is an index of changes in the means of production by which more profit is extracted from the workforce. [See "Concentration of Power in the Food Business," *SftP*, Vol. VII, no. 2, March 1975.]

What is true for food, is true more generally. To meet basic needs, people are forced to consume ever increasing amounts of energy, not by choice, but because of the way labor is organized to produce goods under capitalism. Of course under a different system of production — under socialism — working people would decide how to allocate resources to meet their own needs. It would be a means for directly serving the needs of people as they are expressed in a democratic society.

The capitalists, in order to hide the real basis of excessive energy consumption, use subterfuges like encouraging people to cut back on individual energy consumption: turn down your heat, drive less, cook less, eat less . . . .[2] Not able to reduce the energy consumed in production without jeopardizing their profits or control, the

capitalists are demanding sacrifices from working people. There must be no cutback in the already depressed standard of living for millions of Americans.

To conserve energy, to rationally and humanly use our natural resources, requires that the present outmoded, oppressive, and wasteful system of production be replaced. We must do away with the insanity of capitalism. The task before us is to create the socialist alternative.

Al Weinrub

FURTHER READING

URPE/PEAC & N.Y. SftP, *The Energy Crisis: A Matter of Profits*, 1974 [excerpted in *Science for the People*, Vol. VII, no. 1, Jan. 1975.]

Michael Tanzer, *The Energy Crisis: World Struggle for Power and Wealth*, Monthly Review, 1974.

NOTES

1. Nelson (Oil) Rockefeller, in referring to the quadrupling (since early 1973) of crude oil prices by the oil exporting nations, said in a speech on October 2, 1974, that it constitutes "the greatest challenge America has ever had. The threat it poses is to free society itself—to democracy, free enterprise and freedom as we know it. . . the effect on prices is horrendous. The balance of payments has reached a critical point and the flow of capital to the oil-exporting countries is unprecedented." (*San Fransisco Chronicle*, Oct. 3, 1974) We should consider carefully the words of one of America's wealthiest men. (See NACLA, *The Incredible Rocky.*)

2. Earlier this year the Federal Energy Agency was putting forward a plan for a 20 cent tax on gasoline and 90 other "energy conservation" ideas.

CORPORATE CONNECTIONS OF NOTABLE SCIENTISTS

On February 3, 1975 the San Francisco Chronicle devoted its entire letter-to-the-editors section to a "Scientists' Statement on Energy Policy" signed by 32 "notable scientists". This letter professes concern that the "Republic is in the most serious situation since WWII. . the high price of oil which we must now import in order to keep Americans at their jobs threatens our economic structure—indeed that of the Western World. Energy is the lifeblood of all modern societies and they are currently held hostage by a price structure that they are powerless to influence." The letter goes on to discuss the shortage of oil and natural gas, and the need to convert to the use of solid fuels, especially uranium. They applaud the much criticised Atomic Energy Commission for its recent separation "into the Energy Research and Development Administration and the Nuclear Regulatory Commission which provides added reassurance for realistic management of potential risks and benefits."

The letter, (originally released at the National Press Club in Washington, DC) was signed with "professional Affiliation. . .for identification purposes only" but with special indication of Nobel Prize winners. The following letter was sent to the Chronicle by Science for the People member Charles Schwartz but was never published. Natch.

February 6, 1975

San Francisco Chronicle:

The statement on national energy policy signed by 32 leading scientists, which you ran so prominently in Monday's paper, needs to be sprinkled with a bit of salt before the public may digest it healthily.

In reaching their chief conclusion — namely, that this country should go full ahead with the nuclear power program — these eminent scientists lace their technical discussion with a good deal of personal, and clearly political, opinion. They raise the fear of "the end of our civilization as we know it"; they call for "many sacrifices on the part of the American people"; and as for placing blame for the immediate crisis, they simply parrot the Administration's jingoistic line that it is the fault of the oil exporting nations and "all modern societies . . are currently held hostage by a price structure that they are powerless to influence."

However, not one word in their statement acknowledges the dominant role played by the monopolistic energy corporations in rigging the rules of the energy game. How come?

Reading the list of signers one sees that most of these scientists (26 out of the 32) are identified as being at universities; and thus, perhaps, their ivory tower isolation had caused them to overlook the realities of the business world. But this is not the case.

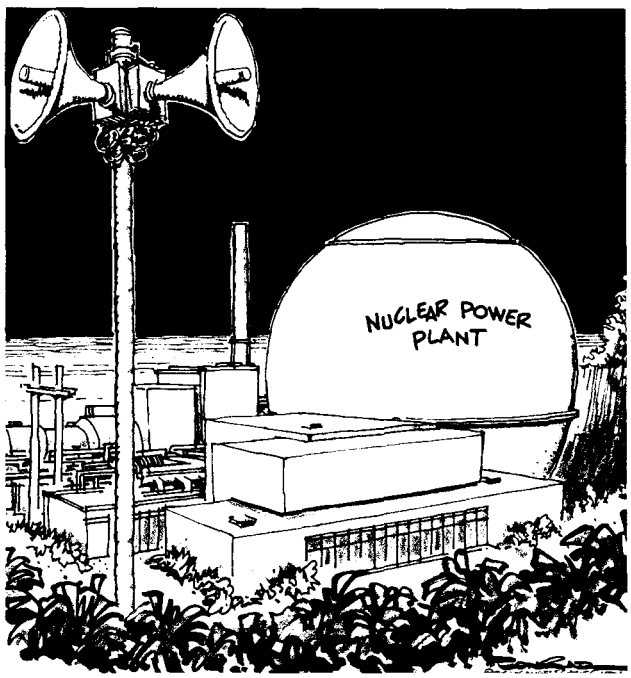
By searching through library references I have identified fully two-thirds of these academic scientists as having personal ties with big business — for example, as consultants to General Electric, General Dynamics, Gulf General Atomic and others heavily involved in building nuclear reactors. What is even more startling is that over one-half of these men (14 out of the 26) have been placed on the boards of directors of major U.S. corporations — including such giants as Exxon, IBM, Xerox, TRW, Owens-Illinois, . . .[See below.]

I do not question the motives which bring these distinguished professors to express their views on the energy problem. But I do suggest that the scope of "reasonable alternative" solutions which they allow themselves to consider may be unduly restricted by their own commitments to the corporate value system.

Sincerely,

Charles Schwartz

Professor of Physics
University of California
Berkeley, Cal. 94720



"In case of emergency, repeat after me: Our father . . ."

Analysis of the "Thirty-two leading American scientists" listed as signatories to the statement, "Toward a National Energy Policy", published by the San Fransisco Chronicle on its editorial page, Feb. 3, 1975.

2 are identified with private industry (Baker, Kantrowitz)
2 are identified as former directors of major AEC laboratories (Bradbury, Weinberg)
2 have no institutional affiliation given (Lapp, Weaver)
26 are identified with major universities (this includes the 11 Nobel winners)

9 out of these 26 academic scientists have held high ranking positions within the AEC system, as members of the Commission, or its General Advisory Committee, or as directors of major AEC laboratories. (Bacher, Brown, Libby, McMillan, Pitzer, Rabi, Seaborg, Teller, Wigner) [1]

4 out of the 26 have been identified as consultants to, but not directors of, major U.S. corporations:

Peter L Auer — General Electric [2]
Hans A. Bethe*— Avco Research Labs; Atomic Power Development Associates; General Atomic Division of General Dynamics Corp. [1]
Edward M. Purcell*— Itek Corp. [3]
Norman Rasmussen — Nucleaar Energy Property Insurance Assn.; Baird-Atomic; Pilot Chem.; Gulf General Atomic [1]

14 out of the 26 academic scientists have been identified as members of the boards of directors of major U.S. corporations:

Luis W. Alvarez*— Hewlett-Packard [3]
Robert F. Bacher — TRW: Bell & Howell; Detroit Edison [2]
John Bardeen*— Xerox [1]
Harold Brown — IBM; Times-Mirror [2]
Willard F. Libby*— Research Cottrell; Nuclear Systems [2]
Franklin Long — Exxon; Inmont [2]
Kenneth S. Pitzer — Owens-Illinois [2]
I.I. Rabi*— Sanders Associates [3]
Roger Revelle — First National Bank of San Diego [2]
Glenn T. Seaborg*— Dreyfus Third Century Fund [2]
Frederick Seitz — Texas Instruments; Akzona [3]
Edward Teller — Thermo Electron [2]
James Van Allen — Iowa Elec. Lt. & Pw.; First National Bank of Iowa City [3]
Edward Wenk, Jr. — URS Systems [1]

* Nobel Prize winner.

REFERENCES

1. American Men & Women of Science, 12th ed. 1971/1972
2. Who's Who in America 1974/1975
3. Dunn & Bradstreet Million Dollar Directory 1974: and annual reports of various corporations.

AAA$ 1975 ACTIONS

Science for the People's approach to the AAAS meetings this year was considerably more restrained than in previous years. Preliminary planning emphasized visibility rather than confrontation and we organized to maintain a viable SftP presence rather than an active engagement with the AAAS hierarchy or the AAAS membership. In this we were greatly influenced by the experience of Berkeley SftP last year at the AAAS in San Francisco. The Berkeley Chapter was lied to, harassed, and threatened with arrest in their attempt to simply maintain a literature table. Their subsequent evaluation of the action was that the AAAS membership was largely unreachable at this point because budget cuts meant that only established figures could now afford to travel to the meeting and they concluded that a large organizing effort was no longer worthwhile, given AAAS harassment as well.

Our experience in New York City was far more positive and we recommend that reasonable effort be put into next year's AAAS meeting in Boston. We maintained a literature table in an excellent location in the Hotel Americana, Monday through Friday, from 9-6 PM. The AAAS was highly conciliatory towards us and the meeting director, Arthur Herschman, was solicitous and polite throughout the meeting. A preliminary telephone conversation with Herschman in Washington had not been as friendly, but he was willing to give us space that he assured us would be satisfactory. This proved to be the case. We interpret the AAAS stance as a desire to avoid unpleasant publicity at this point. Whether the same policy will prevail next year remains to be seen.

Since we were prepared for harassment, eight of us showed up Monday morning to protect the table. We liberated a platform from a storeroom and set up the literature. We were then approached by Herschman and the hotel custodial staff and were requested to accept three large tables, table cloths and chairs to make our display look more presentable. We accepted their chairs and tables and proceeded to sell $200.00 worth of literature, closing at 6 PM to drink and talk with a few conference-goers who came by. The rest of the week went much the same way. We had four to eight SftP people behind the table instead of the usual two, and this made for a lively, enjoyable atmosphere. Many conference registrants were interested in speaking to us about Science for the People and about seventy-five signed a mailing list. By Friday we had sold over $600.00 worth of literature. Representatives from New York City, Stony Brook and Boston SftP chapters participated, and a New York based demographers' group, Emerging Population Alternatives (EMPA) shared the table with us, as did a member of the Committee for Social Responsibility in Engineering (CSRE). We sold Health PAC and New England Free Press literature, as well as our own.

Our actions differed from previous years' in that we did not intervene actively in the sessions. Although there were many opportunities to do this, we had not prepared sufficiently to do more than ask general questions which were often easily evaded.

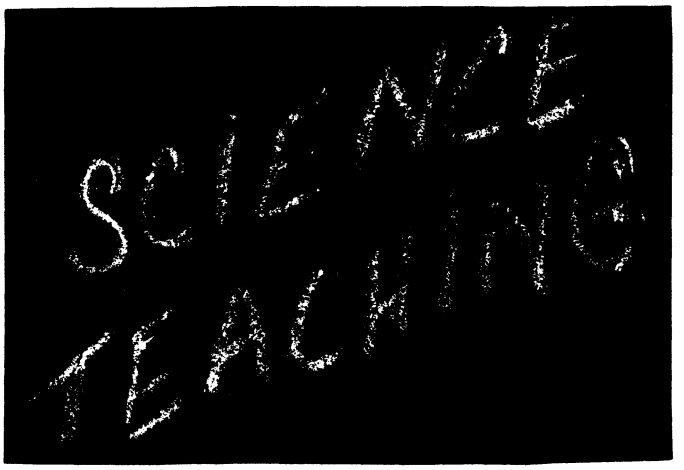
The AAAS meeting was covered by WBAI, the listener-sponsored radio station in New York City. We were completely unprepared for this, but assumed that WBAI, as a station known for left sympathies and for giving air time to radicals, would automatically consult with us about the coverage. This did occur to a significant extent, but not without some heated arguments and misunderstandings about issues such as whether WBAI should give air time to AAAS officials like Roger Revelle and how much time Science for the People should have. As the week progressed, the WBAI crew became considerably more sympathetic toward SftP, the more they saw of the AAAS meeting. As WBAI reported Lindsey Auden put it, "Why, this is nothing more than an industry trade show."

Science for the People participation in the WBAI coverage consisted of Ted Goldfarb (Stony Brook) speaking about the role of the AAAS (Sunday night), Jon Beckwith and Steve Chorover, both from Boston, discussing the XYY situation and scientific neutrality (Monday night), (See *SftP*, Vol. VI, no. 4), Rich Rosen (NYC) speaking on energy on Tuesday and Maurice Bazin and Sam Anderson, both from N.Y., on Third World Science, on Thursday evening. Dick Leigh, Joe Schwartz and Paula Woletz, all of N.Y., presented a summary and analysis of the entire meeting on Sunday afternoon. The Bazin-Anderson session included a militant confrontation with Roger Revelle, the retiring AAAS president and a leader in the promotion of population explosion ideology. The confrontation was somewhat scary and exhilarating since it was the first time that an AAAS bigwig had been cornered without a podium or large lecture hall for protection.

Our evaluation of this year's activities is overall a positive one. We missed opportunities in sessions, but to fully exploit them would have required more time and effort in organizing than seemed appropriate. The scheduled Beckwith, Chorover and Schreier session on "Health Policy and Social Control" was especially successful, suggesting that we should try to schedule whole sessions at the next AAAS meeting, on subjects like science teaching, scientific professionalism, occupational health research, third world science, or science, technology and underdevelopment. The literature sales raised needed money and the WBAI coverage showed the usefulness of movement-type media coverage.

We recommend that we plan for a fairly active participation at next year's meeting in Boston, including an attempt to reserve time on the official program.

New York City SftP



A SCIENCE AND SOCIETY COURSE
Somerville H.S./Somerville, Mass.

I teach a Science and Society course at Somerville High School, a large working-class public school near Boston, where I have free reign over course content, but am constrained by an otherwise rigid structure, and the common problems of students who, because of the continual irrelevance of school to their lives, are skill-poor and antagonistic toward school. The topics studied in the course are examples of misuses of science, that is, applications not in the interest, or directly antagonistic to the interest, of the average person. At first it seemed to me that any of my array of topics was OK to start with, since they all led toward the same basic lesson. I chose Genetic Engineering, thinking the glamor and science-fiction aspects of cloning and *Brave New World* type of fantasies would appeal to the students. The unit was a disaster and I later realized why.

Eventually it became clear that the course deals with three types of examples of science against people: 1) science and technology used for profit and not people (e.g., agribusiness, health care); 2) science used to lend authority to anti-working class ideology (e.g., genetic explanations for class differences, like the race/IQ issue); and 3) technology as a means of direct social control (behavior control, gene manipulation). I now know that the first category is the easiest to grasp and should have been done first.

The other two categories are harder for students because they require a more sophisticated understanding of the class nature of society. Though students are aware of the corruption and cynicism of politicians and of the inaccessibility of government to the common person, they still accept the myths that we have democracy and equal opportunity for all. When, in the context of reading *Brave New World*, I introduced the term "social control", it had absolutely no meaning. The idea that one sector of society has control over others made no sense since the students believed everyone is "free" and "equal" and represented in government. Since the whole unit hinged on this concept, it fell flat. They could see no relevance in the topic and so came to their own familiar conclusion, "This is boring."

Technique of Progressive Example What did work, however, was having students think through, one at a time, little pieces of a larger idea, using activities, wherever possible. For example, beginning the Behavior Control unit with descriptions of behavior control programs in prisons would lead some students to see nothing wrong and others to look at the programs as isolated abuses by misdirected prison authorities. The significance—one of many examples of technological social control and of placing the blame for social unrest on individuals' "problems"—could have been lost. But I started with an example of doctors diagnosing runaway slaves with "drapetomania" (a mental illness) to explain their running away. Students saw the absurdity of that. Then I had them role-play the situation of a family with a son who has been caught selling drugs. I led them to see how they thought of a "drug problem" as a disorder of the individual. Then we looked at the similarities of the two examples—that by focusing on the individual as "deviant", the "system" was off the hook. Later we talked about more subtle examples of behavior modification in institutions with reference to the first examples. Many students began to understand that social control was going on, if not why it was going on. The next unit, on the class nature of society, shed some light on the reasons that certain sectors have for attempting to preserve the "system."

Looking back at the Genetic Engineering unit, I realized that I had presented a bit of genetics, a list of techniques for manipulating genes, and then asked questions about the importance of it all. I neglected to provide situations in which the significance of gene manipulation emerged. This added to their misconceptions about science as an array of technical facts out of which geniuses somewhere else produce miracles.

Progressive Reading Levels Many of my students have difficulty with reading. They *can* read, but for whatever reasons (boredom, negative feelings about school and associated "book learning"?) they rarely will read. Getting them interested is a necessary start only, because they are easily frustrated by a lack of skill; this reaction is perceived as boredom and they reject the topic totally. When they do read, they are very inaccurate about culling information, often grossly misquoting, and so have much difficulty putting together an argument based on reading. Skill in getting the facts straight can be developed, however, when graded reading level material on each topic is chosen or written.

Such material is hard to find and is perhaps best produced by a group of teachers, such as the Science Teachers Group of Science for the People. A recent curriculum unit on food, hunger and population, called *Feed, Need, Greed* proved useful. [This and other curriculum materials are available from Science for the People.] It has very short collections of pertinent information, written simply, which raise but do not answer controversial questions. I used it to combat both inaccurate reading and lack of attentiveness. Pairs of students were assigned one to two pages each to present to the class. Other students were responsible for learning the material in preparation for a quiz. For a while at least, usually passive students asked questions and furiously took notes with a minimum of prompting. The next step was group workshops on the same topics with more substantive reading. Unfortunately nothing was available between the level of *Feed, Need, Greed* and excerpts from its source articles. Again reading frustration killed the topic.

Other Methods Since reading has to be minimal for most of my students, other methods are needed. The most effective way to get some thinking going was often spontaneous role-playing. For example, to communicate the reactionary character of eugenics movements, we tried acting out what would happen if such a program was carried to the extreme and all poor people were sterilized. Kids took roles of various sectors of society and explored alternative courses, in all cases regenerating poverty. It began to emerge that this regeneration was in each case a consequence of the drive for profits. In other words, eugenics programs couldn't help, because social inequities flow from a capitalist economy, not from bad "genes". We were then able to show why eugenics movements were carried out.

There were other issues around which students planned role plays. One play, for example, was in the format of a funding hearing on ways to appropriate education money between a black and a white school. A lot of concerned preparation resulted when another class was invited to participate as a voting audience.

Students can also learn about their community by interviewing people—workers, their own families, prisoners, ex-prisoners, etc. Outside speakers can make presentations. My students' concern over drugging "hyperactive" children was increased when they had a guest speaker from a local mental health center. All of these activities helped to relate school work to real life. Two students went to Harvard Medical School (a bus and two trains away!) for a long meeting on tactics for halting objectionable research on the alleged relation of XYY chromosomes to criminality. [See *SftP* VI, #5, Sept. 1974.] Their excitement grew as they saw that a classroom topic could be a real issue in the real world.

Different techniques are for different kids. I had to develop mine to cope with the low skill levels of my students. The same techniques, however, would suit students with higher skill levels, by relying more on reading for background. Good luck and I hope these thoughts are useful.

—Fran Conrad

Continued from page 19

According to the authors of *Mankind at the Turning Point*, "A number of meetings are already planned with public figures, political leaders of different parts of the world." The objective of such meetings would be the "development of a practical international framework in which . . . cooperation . . . will become a matter of necessity rather than being left to good will and preference." The kind of international representation at these meetings illuminates the interests represented. A large majority of the active participants are from the United States, Western Europe and Japan.

An overwhelming concern with a global perspective for capitalism is evident throughout both reports to the Club of Rome, in spite of the differences in technical detail and solutions offered by the two. The technical debate between CR1 and CR2 for an aggregate or a regional structure of the world model and for no growth or organic growth seems a little futile at this point, since a substantial agreement appears to exist between the two reports. If we assume that there are economic and political forces with interests that are either predominantly global or national, then the overall debate starts to make sense. It is not the second Club of Rome report fighting the first over some obscure technical question, but rather both together representing global interests as opposed to national interests. These reports provide a framework for attempts to coordinate and rationalize capitalism on a world scale and to institute a strict control over economic growth.

Both reports anticipate that some economic and political powers within the capitalist world may see their interests as differing from the overall interest of world capitalism. According to the final commentary of CR1:

> *. . . even if the consequences of continuing growth anticipated by the model were, through human inertia and political difficulties, allowed to occur, they would no doubt appear first in a series of local crises and disasters. But . . . many nations and people, by taking hasty remedial action or by retreating into isolationism and attempting self-sufficiency, would but aggravate the conditions operating in the system as a whole. The interdependence of the various components of the world system would make such measures futile in the end . . . and lead to contagious social disintegration.*[17]

The CR2 report is even more emphatic about the need to control national interests. This report was introduced at a meeting in Berlin by the authors with the warning that if the developed world fails to invest heavily to make the poor nations self-sufficient and to curtail its own waste of resources,

> *There will be a thousand desperadoes terrorizing those who are now 'rich' . . . Ten or twenty years from today it will be probably too late, and even a hundred Kissingers, constantly criss-crossing the globe on peace missions, could not prevent the world from falling into the abyss of nuclear holocaust.*[18]

After examining a more detailed world model, CR2 recommends "organic growth" to be achieved by "paths of development, region-specific rather than based on narrow national interests."

The practical identification of national and international interests as two opposed factions is not unambiguous, since both interests are obviously represented in all large economic and political powers. It is important, however, to recognize that a growing contradiction has emerged between national and international interests in the capitalist world, forcing both governments and large corporations to take sides or to try to straddle the fence on various issues. The "oil crisis" is the most obvious current example of these contradictions. In this situation, the conflicting interests of both the various nations and the multinational corporations involved have become clear, although a concrete analysis of the conflicts is a complicated task. Another example of conflicting viewpoints, apparently opposing international to national interests, is the issue of international aid to South Asia.

But what if we pass the 30% saving on electricity on to the consumer, and then the nuclear power plant blows up?

One position is represented by the Club of Rome, condemning, as mentioned above, "nations or people . . . retreating into isolationism and attempting self-sufficiency." The opposite position has been recently stated by Philip Handler, the president of the National Academy of Sciences, in the following terms:

> *Cruel as it may sound, if the developed countries do not intend the colossal all-out effort commensurate with this task, then it may be wiser to "let nature take its course" as Aristotle described it: "From time to time it is necessary that pestilence, famine and war prune the luxuriant growth of the human race."*[19]

Asked if he was advocating "triage"* and "cutting Asia adrift", Handler replied: "That's what I was saying, gently — I can't imagine not doing it."[19] Jay Forrester, the initiator of the computer modelling approach to world problems, has recently also advocated such an "ethic of triage."[20]

The recommendations of the Club of Rome concerning a slowdown of economic growth in the developed countries are consistent with those of the Ford Foundation concerning energy consumption (and economic growth, in terms of industrial production) in the United States. Such recommendations indicate that the international interests of some United States-based multinational corporations are no longer identical with the national interests of the developed countries, and in particular with the national interest of United States capitalism. It is clear that the latter can no longer be identified with the global interests of capitalism as a whole. The fact that the United States uses 30 to 40 percent of the world's resources with about 6 percent of the world population is pointed out in the three reports we have discussed and has appeared many times recently in the media both in the United States and abroad. The wasteful pattern of food and other types of consumption in the United States is pointed out with increasing frequency. It has been brought up repeatedly by official foreign delegations at recent international conferences: in Berlin (development), in Bucharest (population), and in Rome (food). Such attacks have often come from groups representing capitalist nations and capitalist interests, such as an Argentinian group from the Fundacion Bariloche (the local equivalent of the Ford Foundation). At the Berlin conference, the Argentinian group, backed by other delegations, stated that, "Backward societies could not progress by copying patterns established by the developed countries" and condemned the latters' "frivolous consumption, irrational waste of natural resources, social deterioration and growing alienation".[21]

The sharpening conflicts among different capitalist interests are thus bringing about the need for an instrument of mediation to assure that the overall interests of the capitalist system are protected. Within the "international framework" of the Club of Rome, "statesmen, policy makers and scientists" can debate and formulate the general decisions which "will become a matter of necessity (for capitalists) rather than being left to good will and preference" of "narrow national interests". While each large corporation and government is busy trying to formulate the policy which can best serve its own particular interests, each one must also become aware that such policy cannot be implemented if it is opposed by the others. The Club of Rome appears to have appointed itself, at least for the present, as *the advance planning agency for the capitalist system as a whole.*

That this may indeed be the case, is shown by the following exchange between Schonfield (director of the Royal Institute of International Affairs) and Peccei (the founder of the Club of Rome):

> *S. "What we are really talking about is the need to exert far more central authority over masses of people. The point I want to make is that implicit in the Peccei's system of global management is the reassertion of imperial power on a world scale."*
>
> *P. "No, I wouldn't use those words. I think there would simply be a rethinking among the decision makers toward taking responsibilty for the long term development of economy or society on a global basis."*[22]

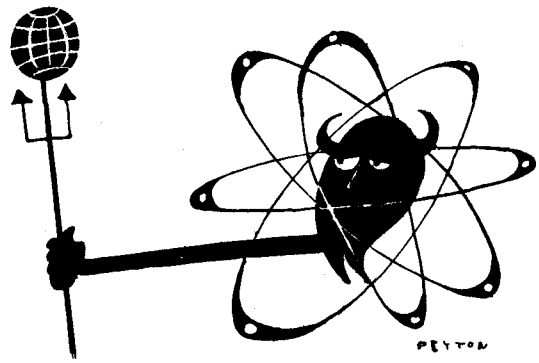
Ideological and Political Implications

Both the Club of Rome and the Ford reports call for some future redistribution of income on a national and international scale, as an essential prerequisite for social equilibrium, when economic or energy growth stops. They do not, however, deal with the present problems of unequal distribution of wealth, power and knowledge within all capitalist countries, much less with the causes of such inequality. Thus, they are not able to

*A military term used to divide war casualties into three groups to determine where to direct medical aid. Use of the term "triage" has recently been extended to refer to counties with relative degrees of need for foreign aid.

make any recommendations for eliminating inequalities in a future global system, other than presenting them as a moral issue — something that *ought* to occur.

The stability of any socio-political system based on inequality depends on material and ideological factors. The latter are necessary in order to persuade as many people as possible to accept inequality among and within nations. The predictions of doom and the policy recommendations of all these reports, in fact, concern primarily — explicitly or implicitly — the advanced industrial nations. Although CR2 apparently extends its scope to include the rest of the world, the decisions about different paths of development in the world's different "regions" are left to the capitalist planners (in the management of such a world is thus implicit the option of triage: the possibility of condemning some regions as hopeless, while preserving or promoting others). Thus, the arguments and rhetoric of these reports are designed to fulfill a twofold aim. One is the political purpose of rallying the governments of the developed countries to actively support a new capitalist global order, and the other is the purely ideological attempt to convince their peoples to accept it.



In an unequal hierarchical society, Daniel Bell notwithstanding, the ideology functions to justify differences among people. In advanced capitalist countries, particularly in the United States, the myth of an open society with equal opportunity for advancement in an everexpanding economy — with pie in the sky — has been an important component of an ideology which legitimizes existing power relationships. Ideological persuasion, appropriately alternated with economic cooperation and violent repression, have secured the acceptance of the "American system" by a large majority of people in this country. The success of analogous operations in other countries, in spite of cultural differences, has been largely conditioned by their degree of economic development. Thus, the appearance of democracy under capitalism has been made possible by the promises stemming from a booming economy based on imperialism (with the consequent lack of capitalist development and democracy in large parts of the world).

The assumption that increased production through technological advance would solve the inequalities of distribution under capitalism — the very foundation of capitalist democracy — has proved false and misleading. Inequalities have never disappeared, even in the developed countries. Now in these countries economic growth has come to a stop, with the result that unemployment is soaring and real wages are dropping. A decline in the standard of living of most working people appears inevitable, which is bound to make the current ideology less and less credible. Since the limits to growth arguments are presented as independent of social and political systems, they are increasingly being used to try to persuade people to accept a lower standard of living, while convincing them that the problems of capitalism are the inevitable result of *any* industrialized society.

It does not seem likely, however, that most working people will be persuaded by such arguments to accept a continuous erosion of their standard of living and to give up their hopes of upward mobility in an open society. Thus, the economic flexibility of the system and the social support for it may well be waning. Hence, the need for more authority and coercion to maintain an increasingly rigid and hierarchical social order. The stability of the new social order will then depend on the possibility of convincing at least the more privileged sectors among the working people — the middle classes — that police repression and other authoritarian measures are unavoidable in order to save the system. Although the "models of doom" arguments will not persuade the poor to accept these new policies of capitalism, the apocalyptic projections of the Club of Rome may be useful in securing the crucial support of the middle classes in the developed countries for an authoritarian regime. This will be necessary for capitalist — rather than world — survival.

Of course, in trying to bolster capitalist authority, the limits to growth arguments will be supplemented by many other ideological and practical ingredients. Sexism, racism and other deep seated and widespread social (and religious) prejudices and fears will continue to be used by precapitalist and capitalist ruling groups to divide their enemies and to win the support of those who are caught in the middle, with ambivalent interests and allegiances. While the present economic, social and political differences among and within nations are largely the result of imperialism and unequal capitalist development, other important cultural differences do exist. The proposals for triage may be looked upon as particularly hideous attempts to use all these differences to prevent people from understanding each other and their real problems.

How far the attempt to impose the new capitalist authority may go, will depend also on many practical factors. One is the ability of the developed capitalist nations to retain control of the largest part of world resources and means of production, by possibly coopting some developing powers, such as Iran and Brazil. Another factor is the possibility of effective opposition to the new phase of capitalism, raised by non-capitalist nations. Finally, the most decisive factor will be the organized resistance and the imaginative counter-offensive of

the working classes and oppressed groups within the capitalist nations and of the liberation movements throughout the world. The strength and the scope of these forces will depend on how and when they identify clearly their goals and their solutions, their allies and their enemies.

Blueprints For An Alternative Model

While a socialist system can provide a more rational utilization and distribution of human and material resources, and can remove the social, economic and political barriers which prevent real democracy and progress under capitalism, it would not automatically solve all the problems of the world by seizing power. World population will keeping increasing (probably doubling even if birth rates should drop immediately to replacement levels) and therefore food and industrial production must be greatly developed, if the needs of all people are to be met. However, industrial growth through available or projected technologies is threatening disastrous depletion of resources and pollution. Such "limits to growth" — as they are perceived by capitalist planners — are real problems for the future and can only be avoided by a socialist society through a transformation of science and technology. Qualitative changes must be made in the production and use of materials and goods which can preserve the common environment and yet satisfy universal needs. No technocratic class — be it one like the Club of Rome or one with a progressive political allegiance — can invent and direct such a transformation. It is necessary, instead, that all nations and people learn to plan, develop and control — through new democratic institutions — the material conditions of their life.

The qualities that will characterize a future socialist society are developing in present social and political experiments, both inside and outside the capitalist world. Such qualities will emerge and grow as the number and awareness of the people involved grow, and as they learn from their achievements and their failures. These movements have already outlined a greatly enlarged conception of economic and political democracy. They have recognized the necessity for community and workers control of the national economies and the production process, through non-hierarchical institutions. They have brought up the political nature of personal relationships, and the crucial necessity for a shift to cooperative and non-exploitative forms of human behavior, if genuinely collective institutions are to be viable. New experiments are also beginning to demonstrate that a meaningful technological assessment can only be made in an economic system that dispenses with capital accumulation and private profit, and that technologies will have to be redesigned to conform to environmental safety and political control by popular institutions.

While one cannot outline all of the essential characteristics of a socialist society which does not yet exist, it is important to start the work. A world wide socialist plan of development must be forged, along with a new and real international solidarity. It must include the criteria and strategy for redistribution of material resources and for a transformation of social and technological structures. It has to satisfy the cultural and political goals of the nations and people involved. Its practical realization requires a transition which would surely transcend, in its significance and its difficulties, all previous political, cultural and technological revolutions.

— David Jhirad, Marian Lowe,
Paolo Strigini

The authors are working on models of development and are members of Science for the People. David Jhirad is a physicist at the Unversity of Massachusetts, Boston, interested in new energy sources, environmental issues and non-linear systems. Marian Lowe is a chemist at Boston University, and is currently working with a group of women on a book about women, science and ideology. Paolo Strigini is a geneticist at Boston University, interested in population dynamics and genetic engineering. A preliminary version of this article has appeared in *Perspectives*, Cambridge, Mass., June 1974.

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REFERENCES

1. D.H. Meadows, et. al., *The Limits to Growth* (Signet, New York 1972)
2. D.H. Meadows, et. al., *op. cit.*, p. 29
3. *Science News*, September 2, 1972, p. 153
4. H.D. Cole, et. al., *Models of Doom* (Universe Books, New York 1973), p. 27-28
5. *Ibid.*, p. 10-11
6. *Ibid.*, p. 209 *ff.*
7. M. Mesarovic and E. Pestel, *Mankind at the Turning Point* (E.P. Dutton and Co./Readers' Digest Press, New York 1974)
8. M. Mesarovic and E. Pestel, *op. cit.*, p. 55
9. Our description is taken from the *Preliminary Report of the Ford Foundation Energy Policy Project*, Washington, D.C., 1974. The final report has been presented to the general public under the title *A Time to Choose*, Ballinger, Cambridge, 1974
10. Preliminary Report of the Ford Foundation Energy Policy Project, p. 39
11. *Ibid.*, p. 52
12. J. McDermott, *Technology, The Opiate of the Intellectuals*, N.Y. Review of Books, July 31, 1969
13. H.D. Cole, et. al., *op. cit.*, p. 237
14. B. Commoner, *The Closing Circle*, (Bantam Books, New York 1972)
15. D.H. Meadows, et. al., *op. cit.*, p. 199-200
16. M. Mesarovic and E. Pestel, *op. cit.*, p. xi
17. D.H. Meadows, et. al., *op. cit.*, p. 192
18. M. Mesarovic and E. Pestel, *op. cit.*, p. 69
19. *Science News*, November 2, 1974, p. 278
20. *The New York Times*, October 17, 1974
21. *The New York Times*, October 1, 1974
22. *The London Observer*, March 19, 1972

letters

Dear Friends,

I am sending you copies of a letter on behalf of Karl Armstrong that is now circulating among scientists in Italy, France, Switzerland, England and, to a very limited extent, the United States. Could you publish it in your magazine and ask for more signatures?

Friendly,
Bruno Vitale
Switzerland

We encourage Science for the People readers to add their names to the letter printed below, circulate it in your workplace or school, and mail one copy to Karl and one copy to us [for his lawyer]. For more information about this case and the AMRC, see Science for the People, *Vol. VI, no. 1, Jan. 1974 and the* AMRC Papers, *available from our office.*

Comrades,

As a result of some discussions conducted in advance of and in anticipation of the locally held NSTA meeting some of us have decided to go ahead with formation of a chapter. In view of activity at the NSTA meeting, it seems likely that many new people will be interested in joining, and also that a second chapter, centered in, or near, Orange County, may form. Contact:

L.A. SESPA
c/o Al Huebner
P.O. Box 368
Canoga Park, CA 91303

ANOTHER CHINA TRIP?

A group has formed to draft a proposal for a second Science for the People trip to China. The last trip resulted in the book *China: Science Walks on Two Legs* (Available from our office for $1.75. Excerpts in *SftP* Vol. VII, no. 6, Nov. 1974.) We are especially seeking input on project goals that would supplement this theme or branch out in new directions.

If you have any ideas or just want to show some interest please write:

China Group
c/o Science for the People
9 Walden St.
Jamaica Plain, Ma. 02130

ON BEHALF OF KARL ARMSTRONG

To whom it may concern:

On August 1970 a bomb seriously damaged the building and the electronic computer of the AMRC (Army Mathematical Research Center) in Madison, Wisconsin. A physics researcher was accidentally killed; an anonymous warning to evacuate the building had been ignored by the police. The AMRC had been engaged in active collaboration with the Pentagon over the optimization of the electronic battlefield and the heavy bombing on North Vietnam; among its research themes: "Strategy and tactics analysis", "Combat effectiveness problem", "Models of guerrilla engagements".

More than one year later, in February 1972, the Canadian police arrested one of the four men accused of the bombing, Karl Armstrong. The son of a Madison worker and a nuclear engineering student, he had been active in the peace movement in Madison since 1965 and had become convinced that all peaceful means to stop the war in Vietnam had been exhausted.

His extradition from Canada to the U.S. was followed by a trial in Madison during which he pleaded guilty of arson and was handed down a 23 year jail sentence. The "political connotations" of his deed were denied. And there has been even a suggestion that the state should try and break its plea bargain and charge him with other "crimes" so that he could be sentenced for life!

We, physicists, technicians, students and workers in:

want to state clearly and forcefully our solidarity with Karl Armstrong. We believe that, by acting as he did and by attempting to stop military research at the AMRC, he correctly identified in one of the most sophisticated fields of pure and applied research one of the most dangerous enemies to fight against, one of the subtlest allies to aggression and imperialism in the world: modern technology, instrumental to the policy of aggression and repression carried on by the American government.

We believe that he intended to act for our Vietnamese comrades, for all that fought for peace in the United States and for us all; his deed was indeed an "act of war" and as such its "political connotations" should weigh heavily in any future revision of his case. We ask for an immediate revision of his trial and for his liberation.

(address of K. Armstrong: P.O. Box C, Waupun, 53963 Wisconsin, USA)

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SESPA is defined by its activities. People who participate in the (mostly local) activities consider themselves members. Of course, there are people who through a variety of circumstances are not in a position to be active but would like to maintain contact. They also consider themselves members.

The magazine keeps us all in touch. It encourages people who may be isolated, presents examples of activities that are useful to local groups, brings issues and information to the attention of the readers, presents analytical articles and offers a forum for discussion. Hence it is a vital activity of SESPA. It is also the only regular national activity.

We need to know who the members are in order to continue to send *SCIENCE FOR THE PEOPLE* to them. Please supply the following information:

1. Name:

   Address:

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   Occupation:
   (if student or unemployed please indicate)

   If you are working, do you work in industry [ ], government [ ], university [ ], other _____

2. Local SESPA chapter or other group in which I'm active:

3. I am enclosing money according to the following scheme: (a) regular membership–$12, (b) indigent membership–less than $12, (c) affluent or sacrifice membership–more than $12, (d) completely impoverished–nothing, (e) I have already paid.

4. I will sell ___magazines. This can be done on consignment to bookstores and newsstands, to your colleagues, at meetings. (If you want to give some away free because you are organizing and can't pay for them, let us know)

5. I am attaching a list of names and addresses of people who I believe would be interested in the magazine. Please send them complimentary copies.

6. I would be willing to provide technical assistance to community, movement, or Third World groups in the areas of:

Please add any comments on the magazine or SESPA or your own circumstances. We welcome criticism, advice, and would like to get to know you.

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