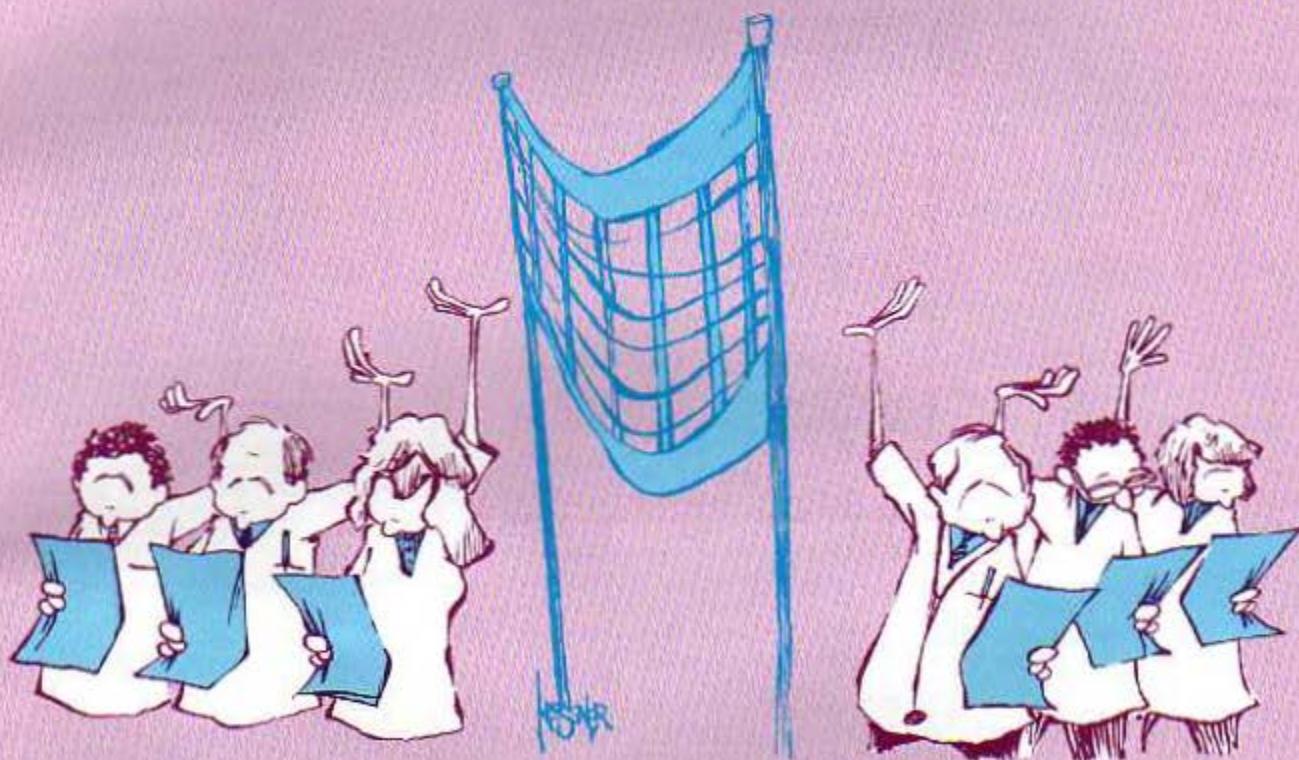


A Womb of One's Own • Technology & Cooptation

# SCIENCE FOR THE PEOPLE

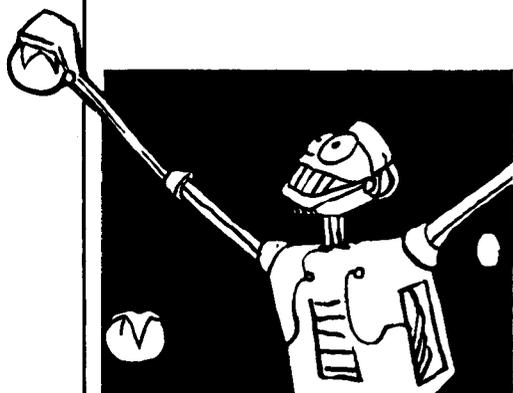
Vol. 19 No. 4

\$2.50



## Technology & Women's Health

# Letters



## Careful Technology

Dear SftP:

I don't think you have been too "anti-technology." (Labels can be unnerving.) And contrary even to Barry Commoner ("Bringing Up Biotechnology," March/April 1987), I don't see *any* use, however theoretically progressive, that justifies the catastrophic risks of recombinant DNA. Let's not sanction a biological Chernobyl.

—David Keppel  
Essex, Connecticut

## Detering Justice

Dear SftP:

I would hardly call the deterrence aspect of Joel Feigenbaum's two-month jail sentence unusual. (See "Otis Base vs. Cape Cod Residents" in the May/June 1987 issue of SftP.) Many judges seek to send such a message to other activists, regarding civil disobedience, by delivering long real-time and probationary sentences. Restitution enters into the game too.

Judge Paul Hatfield of Great Falls, Montana gave me three years (two-and-a-half suspended) for a mild "plowshares" action in a missile silo 60 miles from his courtroom turf—and the prosecuting attorney sought at least some sort of punitive time for me via the logic of deterrence. The Silo Pruning Hooks were treated even more severely by their judge in Missouri.

I do not see how two months will ruin anyone. Although Dr. Feigenbaum probably asked for public help concerning his case, why not broaden the campaign to include *anyone* who has been railroaded into jail or prison? Feigenbaum has the

power to choose whether or not to do civil disobedience and take subsequent lumps; most people in jail have few (or no) choices, piss-poor lawyers, and very little in the way of justice.

—Thornton Kimes  
Des Moines, Iowa

## Central America Conference

Dear SftP:

The Committee for Health Rights in Central America (CHRICA) is sponsoring the fifth major interchange between North American and Nicaraguan health care communities. This year, for the first time, we are encouraging scientists to attend, as part of an ongoing effort to expand the focus of the colloquium.

The 10-day event includes presentations by Nicaraguan and international health care professionals, extensive tours throughout Nicaragua, meetings with government officials and opposition leaders, and social and cultural events. For the science contingent, we will try to arrange special tours to the medical schools in Managua and Leon, and to other facilities, in order to learn more about the research and teaching in Nicaragua.

The colloquium provides an excellent means to learn about Nicaragua—the people, the politics, and the science and health care—in an intensive and fulfilling forum. Previous participants (to date over 600) have rated the conference as excellent and outstanding.

For a complete description and brochure, please write to: CHRICA (Box S), 513 Valencia #6, San Francisco, CA 94110. For general questions about the colloquium, telephone CHRICA at (415) 431-7760. For questions about the science contingent, telephone David Kimelman, Ph.D., at (415) 476-2669. Registration deadline is September 15, 1987, and the deadline for those wishing to make an academic presentation is August 15.

—David Kimelman  
San Francisco, California

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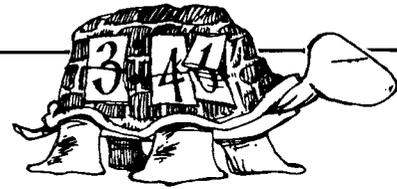
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Today, what should be a woman's birthright—the right to decide when to have a child and to practice safe birth control—is denied millions of women around the world. Pitted against them are a number of obstacles: economic discrimination, subordination within the family, religious and cultural restrictions, and the distortion of family planning programs to serve population control.

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In the 1980s, U.S. medical facilities are concentrating on marketing services to healthy women with money. Instead of making real changes which could make health services more appropriate to the needs of all women, the medical establishment is coopting the women's health movement.

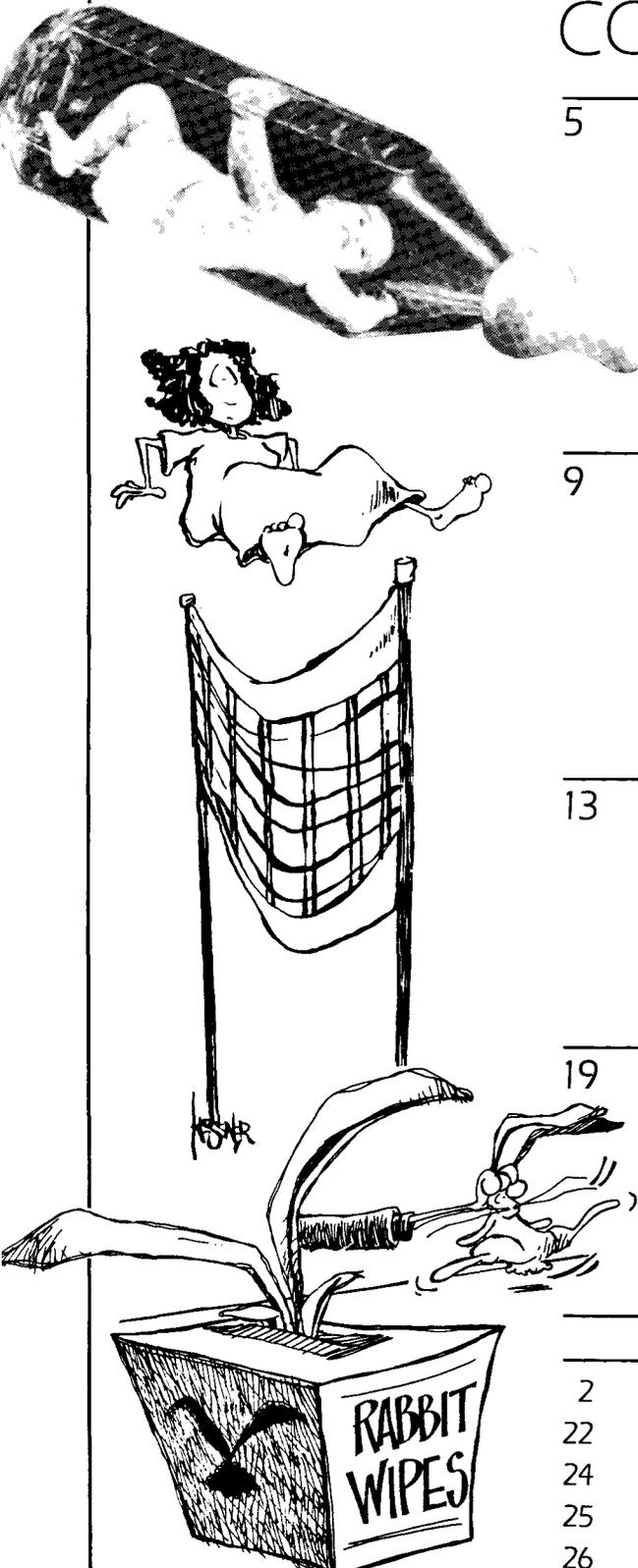
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by S. A. Spitz

The search for medical help can cost a patient years, thousands of dollars, and the breakdown of family relations (some eighty percent of marriages involving chronic illness end in divorce, with husbands more often leaving disabled wives)—all because a doctor didn't listen to the patient, didn't look, and didn't think.

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## HAVE YOU GOT A PATENT FOR THAT PET YET?

Organized opposition to the U.S. Patent Office's policy to patent all animals involved in genetic engineering is growing. A broad-based coalition of national farm organizations, animal welfare groups, and environmental organizations has been formed by the Foundation on Economic Trends and the Humane Society of the United States. They will urge the U.S. House of Representatives to join the Senate in cutting off appropriations to the U.S. Patent Office for all work on animal

patenting. The Senate voted to cut off funds for animal patenting on May 28, 1987.

"The Patent Office decision is morally repugnant and economically indefensible," said Jeremy Rifkin, president of the Foundation on Economic Trends. "The American public will not tolerate the idea of reducing the entire animal kingdom to the lowly status of a commercial commodity indistinguishable from electric toasters, automobiles, and other manufactured products," Rifkin added. "We don't want our children to grow up in a world where animals are considered patented products."

The Senate vote to cut funds for animal patenting came a day after the Office of Technology Assessment (OTA), a nonpartisan agency of specialists and

scientists charged with helping Congress deal with new developments in science and technology, released a survey of public attitudes towards biotechnology and genetic engineering. Two-thirds of the 1,273 respondents think that genetic engineering will enhance life for all. However, more than three-fourths agreed with the statement that "the potential danger from genetically altered cells and microbes is so great that strict regulations are necessary."

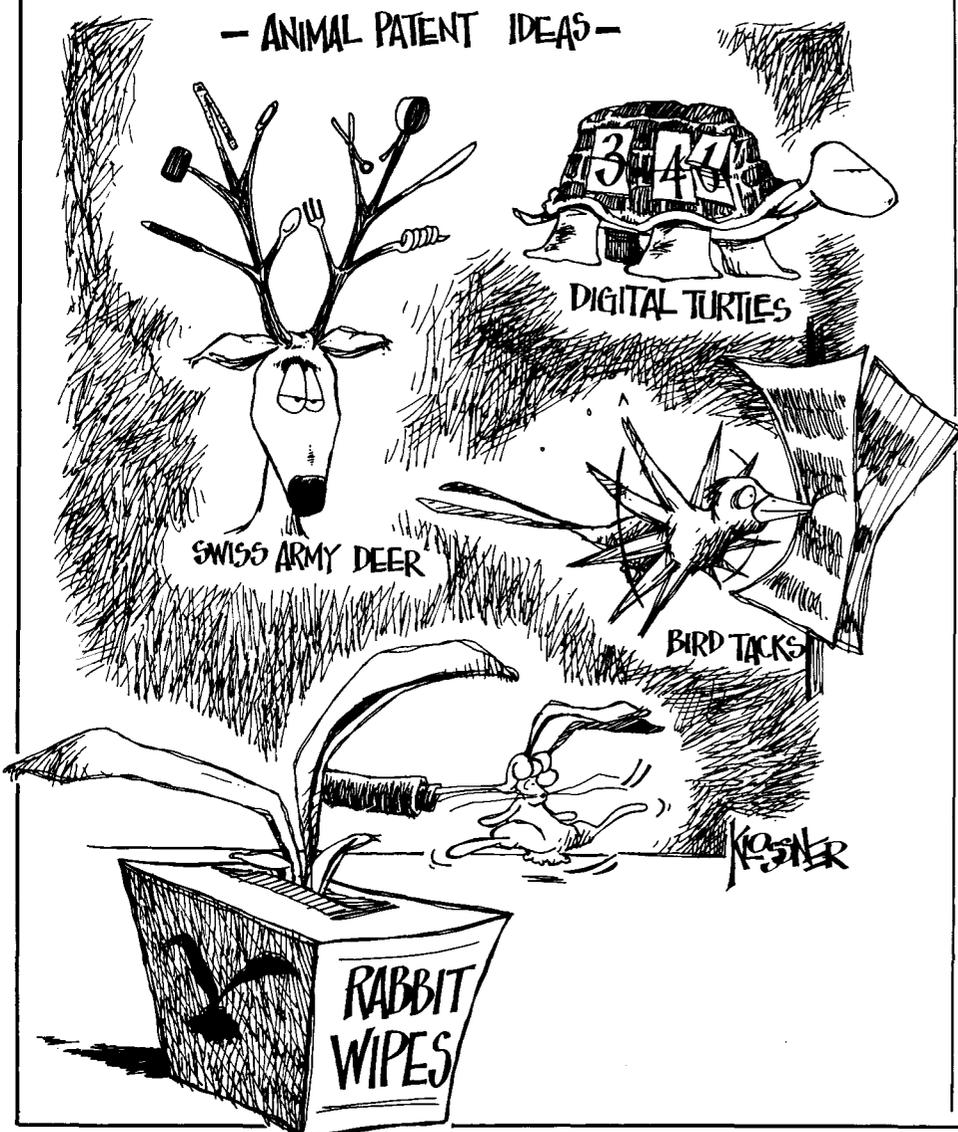
A 53 percent majority believe that commercial firms should not be allowed to release genetically altered organisms on a large-scale basis, even if environmental risks were judged to be very small. However, 82 percent favor small-scale testing of these organisms, and 67 percent approve of testing in their communities. But eighteen percent would not approve the environmental release of a genetically altered organism, even if the risk to the environment was one in a million.

Survey results were contradictory, showing respondents to be both fearful and supportive of genetic engineering. According to the OTA, "The survey finds that while the public expresses concern about genetic engineering in the abstract, it approves nearly every specific environmental or therapeutic application. And, while Americans find the end products of biotechnology attractive, they are sufficiently concerned about potential risks, that a majority believes strict regulation is necessary."

A third of the respondents think that "we would be better off if we did not know how to genetically alter cells." Forty-two percent believe that it's morally wrong to change the genetic makeup of human cells, "regardless of the purpose." Yet a majority—including most of those with moral doubts—endorse altering human genes to stop children from inheriting genetic diseases that are either fatal or nonfatal, to cure genetic diseases that are usually fatal, and to reduce the risk of developing fatal diseases later in life.

When faced with conflicting statements over potential risks in biotechnology, more than twice as many respondents said they'd believe environmental agencies over federal agencies by a margin of 63 to 26 percent. University scientists, public health officials, and environmental groups were all ranked ahead of federal agencies in credibility on biotechnology issues.

—Leslie Fraser



## SUPER-CONDUCTING SCIENCE

According to Robert K. Merton, the father of the sociology of science in the U.S., the ethos of modern science is characterized by four sets of imperatives: universalism, communism, disinterestedness, and organized skepticism. While now considered passé by scholars in the field, Merton's views still find their way into the rhetoric of the propagandists of modern science—and with great effect.

In a nutshell, this cosmology asserts that science judges claims of truth not by the backgrounds of their proponents, but by the merits of the arguments. It purports that scientific knowledge is shared communally rather than appropriated privately, that scientists reject remunerative interests in the discoveries of science, and that the scientific method depends upon detached scrutiny. But a recent breach of academic decorum, bordering on the absurd, nakedly reveals that the quest for knowledge may be only a by-product of the desire for wealth and fame.

According to *Science* magazine, Paul Chu, a University of Houston physicist, recently sent manuscripts of two important papers on superconductivity to *Physical Review Letters*, with the symbol Yb (denoting the element ytterbium) substituted for the symbol Y (the element yttrium)—they key ingredient in a new superconducting compound.

Due to recent stunning advances, high temperature superconductors are now predicted to hold the key to the future of everything from computers to electrical power transmission and high-speed transportation. What may become the supertechnology of the 1990s is therefore tempting scientists with the lure of Nobel prizes and lucrative royalties.

So it is no surprise that competing physicists raced to duplicate Chu's work following rumors that he had reported achieving superconductivity at 93 degrees Kelvin. But due to the "mix up," they were safely on the wrong track, experimenting with ytterbium. Chu explained that the mistake was the result of a typographical error made by his secretary in the manuscript sent to the *Physical Review Letters*. He claims that it remained undetected until he saw the

proofs. Reportedly, he made the corrections, changing Yb to Y—the actual name of the element appeared nowhere in the manuscript—on the last day that corrections could be made before the publication went to press. But not before he had filed a patent application—apparently free of typos—on the compound.

In the frenzied search for new materials

## TOILET TRAINED

A recent study of a lavatory at the Sequoia atomic power plant in Tennessee revealed that a plan to demolish three toilets and one urinal in the event of a nuclear accident was unwarranted. The emergency plan, developed in 1984, called for plant engineers to smash the bathroom plumbing with a sledge hammer and cover the drains with duct tape.

This unusual tactic was believed necessary to prevent disruption of the control room's positive pressure by drainage from damaged toilets in the adjacent bathroom if an earthquake occurred during (or caused) a nuclear accident. The new study concluded, however, that the plan was not necessary because the bathroom fixtures would be unaffected by an earthquake, vindicating industry claims that atomic plants are protected by multiple levels of protection.

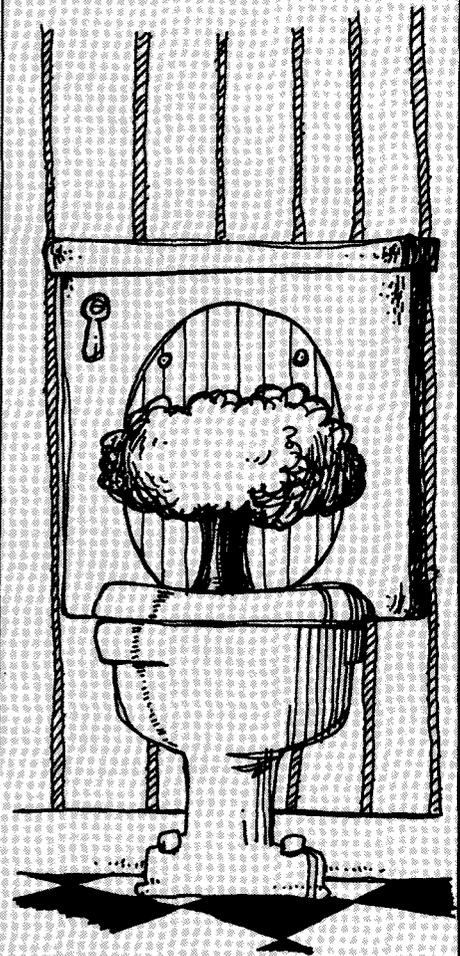
This is not the first time that bathroom plumbing has threatened nuclear safety. According to Jacques Cousteau's *Cousteau Almanac*, a University of Florida research reactor was shut down five times in three years due to untimely flushes of the facility's toilets. Apparently, the plant's secondary cooling system, used in "low-risk" experiments, was tied into the city's water system by a bathroom water main, causing a malfunction when a toilet was flushed. To prevent experiments from going down the drain, a sign was posted on the lavatory door that read: "Please don't flush the toilet while the reactor is running."

While not wanting to alarm our readers with insupportable assertions about nuclear plant safety, we are now convinced that the evidence demands more effective emergency planning. A plunger, once considered sufficient safety equipment in the event of a meltdown, is clearly not enough. As an initial step, we propose, in addition, a snake and Draino, but welcome other ideas from our readers.

—Dan Grossman

with even more suitable properties, and under the spotlights of congressional hearings on high-tech competitiveness, Chu's elemental mistake will soon be forgotten. But, if only for an instant, the black tie underneath his white coat was revealed, undermining the pretensions of universalism, altruism, and objectivity in science.

—Dan Grossman



John Klossner

## SEND US A NOTE

Keep a lookout for news that might have missed the mainstream. Send us newsnotes about science and technology, and we'll extend your subscription six months for every item we print. Send to Newsnotes, Science for the People, 897 Main St., Cambridge, MA 02139. Newsnotes are edited by Leslie Fraser and illustrated by John Klossner.

## SHARKS ATTACK AT&T AND LIGHTNING STRIKES NASA

If it's not one thing it's another in this technological world of ours, but two articles on the front page of the *New York Times* last month really stopped us in our tracks.

We read that sharks in the Atlantic have shown an inexplicable attraction to the newly laid fiber-optic cables that link U.S. telephone lines with Europe. Some researchers apparently believe that something about the electric current in the lines triggers an unexpected "feeding reflex" in the sharks, who have never shown any interest in previous underwater cables.

We also read on that day's front page that three small NASA rockets were set off by lightning. Apparently a lightning bolt struck close enough to the pad to induce "enough current into the firing leads to set the rockets off."

Both of these stories have an almost fanciful quality that flukes-of-nature commentators observed in each situation. But, especially by their juxtaposition, they have a deadly serious message about complex technological systems and the fundamental unpredictability of natural phenomena.

American Telephone and Telegraph officials acknowledged that they never anticipated any problem from sharks. "We were surprised," James M. Barrett, deputy director of international engineering for AT&T is quoted as saying. "We had laid 55,000 or 60,000 miles of undersea cable all over the world with no problem. There had not been a single case of a shark biting one of the old cables." Barrett said that, compared to other hazards, such as fishing lines, anchors and propellers, volcanoes and earthquakes, sharks were deemed to be a minor threat.

NASA officials said it was the first time in more than 13,000 launchings at the Virginia site that lightning had ever triggered a rocket to lift off. And they acknowledged that they, too, were caught unprepared and unsuspecting. Robert Duffy, NASA official, said there was "no lightning protection" on the pad, adding that in such a situation, "There's not much we can do."

While many tens of thousands of dollars worth of damage has resulted from each of these natural acts, no one—



John Klossner

except perhaps the sharks—has been hurt. Because of that and because of the comical nature of the monkey wrenches responsible in each case for throwing the otherwise precise technological systems out of kilter, these stories, taken together, give the impression that we can live with technological disasters.

In the NASA story, officials immediately tried to isolate the incident and allay fears of other accidental launches. NASA officials and unnamed "weapons analysts" claimed in the article that it would be "virtually impossible" for lightning to trigger the launch of any nuclear missiles. But it still gives one cause to wonder. In this post-Bhopal, post-Chernobyl world, people have seen how great the costs can be. More often than not, they are right to

insist that "virtually impossible" just isn't good enough.

When catastrophic events can be triggered by relatively small, unanticipated mishaps, there is good cause to question the technological system involved. We can't anticipate the unexpected, but we can avoid situations where such breakdowns in the "management of technology" can potentially—even in worst-case scenarios with admittedly remote chances—cause intolerable injury or destruction. The next time someone says otherwise and tries to sell a dangerous technological system as "foolproof," just tell them about the sharks and the lightning.

—Seth Shulman

## THE BIG BLACKOUT

Imagine "the day after." All major cities destroyed. Fallout everywhere. Nuclear winter approaching. Nothing but canned food to eat. And damn it, thanks to congressional tightwads, no electricity.

Until recently, farsighted Air Force planners hoped that after a nuclear war, several hundred small nuclear reactors would keep the flame of civilization burning where it has always flourished—at military bases around the United States. The Air Force and the Department of Energy were working jointly to develop underground nuclear reactors for key military installations.

Westinghouse, the mega-multinational of electricity, had already been selected to design a ten-megawatt plant over a two-

year period for an estimated \$11-\$13 million. And the program promised to rocket the nuclear power industry, which has not received an order for a new reactor in more than ten years, out of the doldrums with billions of dollars from military contracts paid for by U.S. taxpayers.

But the Megawatt Terrestrial Powerplant Program has been cancelled, reportedly due to budgetary considerations. According to the Air Force, "congressional direction not to use military construction program funds for the project" forced the program to be terminated. Perhaps, now faced with the unpalatable prospect of reading by candle light and cooking with Sterno, trigger-happy nuclear warriors will think twice before pushing the button.

—Dan Grossman  
information from the *Washington Post*

# NEW REPRODUCTIVE TECHNOLOGIES

## International Feminist Concerns



Photo/T.S. Nagarajan, UNICEF

BY NELLIE KANNO

**A**t the Second International Interdisciplinary Congress on Women, held in the Netherlands in 1984, a group discussion of the new reproductive technologies led to the creation of the Feminist International Network on the New Reproductive Technologies, or FINNRET. This new organization began with a mailing list of 500 women representing

*Nellie Kanno is an associate professor in public health at the University of Massachusetts in Amherst and a fellow at Radcliffe College's Mary Bunting Institute. She has experience in women's health issues in the Third World and the United States. This article was adapted from a paper presented at the Women, Health and Technology Conference held at the University of Connecticut in Storrs on October 23, 1986.*

twelve countries. These women agreed to hold an emergency conference on the new reproductive technologies in Sweden in July of 1985. During that conference, 74 participants from sixteen countries discussed the most recent legal and ethical issues involved in the new reproductive technologies and changed the organization's name to FINRRAGE—Feminist International Network of Resistance to Reproductive and Genetic Engineering.

In her brief history of the group, Jan Raymond, a medical ethicist, discussed the need for "focusing public attention on how reproductive technologies are using women in the service of medical experimentation, are controlling pregnancies and reproduction, and are increasing the international traffic in women for purposes of reproductive prostitution."<sup>1</sup>

She continued her presentation by discussing the challenges facing all women as they attempt to monitor the entire field

of reproductive technologies. This includes familiarity with reproductive technologies on an international level, so that better monitoring procedures can be established. In monitoring these techniques, it will become possible to share information on how these technologies are affecting women.

Women need to view these technologies in a wider perspective, as they influence the quality of life, particularly the lives of women. Women need to look at the social, cultural, and political context under which the new reproductive technologies are presently introduced.

Gena Corea, in her overview of the new reproductive technologies, discussed how new technologies "such as in vitro fertilization (IVF), are presented to the public as therapy and used as a benevolent means of expanding people's options; in fact, they offer a powerful means of social control."<sup>2</sup> In Corea's opinion, these

technologies will not be confined to use in the infertile; they will eventually be used on a large proportion of the female population.

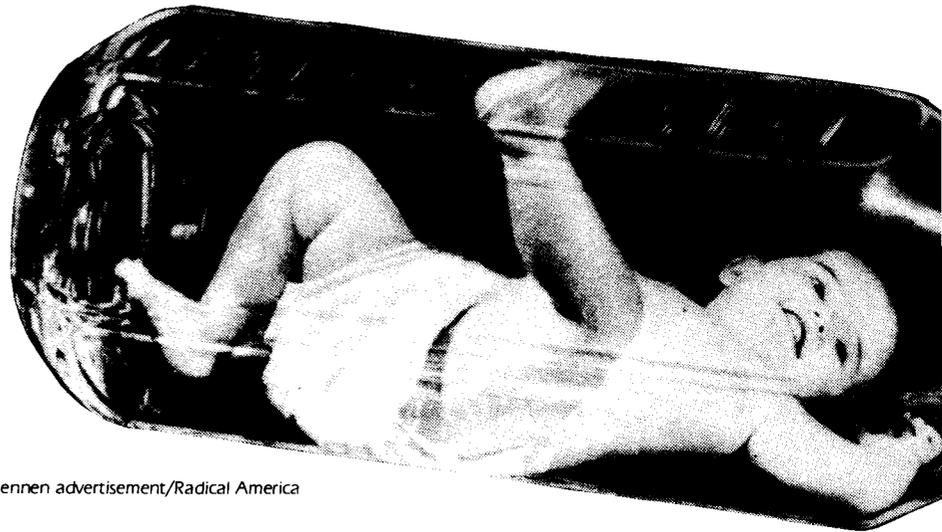
Corea gives examples of reproductive technologies that were developed for use with a specific group of women, but subsequent use of these technologies spread to large numbers of women or to a majority of women from specific groups. "In obstetrics, electronic fetal monitoring (EFM) was introduced for use on women judged to be at 'high risk' of obstetrical complications.... But now in many industrialized countries, it is used on most birthing women. The same pattern is evident with ultrasound scanning, amniocentesis, cesarean section, and genetic testing and counseling."<sup>3</sup>

Corea expressed the fear that many of the emerging reproductive technologies, such as in vitro fertilization, egg donation, sex predetermination, and embryo evaluation, could also become common practices. Some suggestions have already been made regarding the use of in vitro fertilization that raise a host of ethical questions. In Australia, in 1984, an IVF clinic director suggested that some people may prefer donor eggs and donor sperms rather than their own, because they may not like their own or their partner's characteristics. Some newspapers have even carried articles asserting that test-tube babies are smarter than babies born by natural reproduction.

### **CONTROLLING REPRODUCTIVE CHOICE**

In 1982, directors of three American IVF clinics predicted that in the future, test-tube embryos are likely to be screened to eliminate those of a sex their parents do not want, or those with birth defects. In 1986, the press reported on experimental procedures developed in the United States and Japan that are capable of producing a male child. Reproductive technologies are now being used in some developing countries for sex selection to ensure the birth of males. These technologies are, in Corea's opinion, not developed to help women, but to provide "technodocs" who use them with a powerful means by which to control women.

At the FINRRAGE conference, Maria Miles of West Germany felt that a discussion of the new reproductive technologies should not begin with a definition of the techniques and possible abuses, "but with the basic question of whether we need this technology at all." In Miles's opinion, "these new technologies are not capable of solving the problem of oppression of women and are in some instances destructive to women's human relations and their bodies."<sup>4</sup> Miles also felt that the new technologies represent a war



1943 Mennen advertisement/Radical America

on women and violence against women of a different form.

Maternity is being increasingly structured and controlled by the new reproductive technologies. This presents a need to evaluate proposals that presume women to be the problem in infertility, thus justifying the development of reproductive technologies. The causes, not just the remedies, of infertility need to be addressed, and ironically, some causes of infertility are linked to abuses of reproductive technologies. Following is a comparative look at the use and abuse of these technologies in a number of countries.

### **AUSTRALIA**

South Australia offers in vitro fertilization (IVF) and artificial insemination by donor (AID) programs at two of their three teaching and research hospitals. The failure rate per cycle in IVF is 84 percent. About one woman in five leaves an IVF clinic with a baby. Estimates of the cost of these programs puts a pregnancy at between \$10,000 and \$15,000.

Published material on research in reproductive technologies is very difficult to find. According to health educator Judith Dwyer, research in Australia is led by the Melbourne team headed by Carl Wood. "This team has on occasion recruited ova donors from among sterilized women, citing lack of excess ova and using higher levels of hormonal stimulation for experimentation."<sup>5</sup>

Information about the type of people participating in the programs is scarce. However, it is known that only married couples are selected, and the woman must be under 38 years old. Non-English-speaking persons are not selected for IVF treatment, and those selected must pay a fee, in addition to private health insurance coverage.

Legislation for reproductive technologies in Australia is in the form of the Family Relationship Act of 1975. Under this act,

children born of donor gametes are not recognized as legal. AID children must be adopted to be legalized. Concern about these two issues led to the creation of the Report of the Working Party on IVF and AID (the Connon-Kelly Report) in 1984.

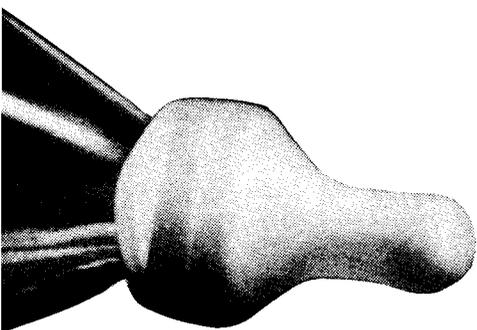
### **DENMARK**

In Denmark, since about 1976, "Amniocentesis and ultrasound scanning have become routine procedures.... Today 80 percent of all pregnant women over 35 years undergo amniocentesis," according to Lene Koch. "It appears that several healthy fetuses have been aborted during these processes of detecting a defective one."<sup>6</sup>

A group of feminist doctors, theologians, psychologists, and politicians comprise the Feminists' Ethics Committee that reviews ethical questions in these and other reproductive technologies. Through this committee, many of the ethical issues involving the new reproductive technologies have been highly publicized. Two members of the committee are now members of Denmark's Department of the Interior committee, which evaluates ethical issues in reproductive technologies.

### **BRITAIN**

In England, there are eight clinics providing IVF services. Six of these are associated with National Health hospitals, and two are with private clinics. The Bourn Hall Clinic of Robert Edwards and Patrick Steptoe is the most well-known. The Medical Research Council funds research projects relating to IVF at the Reproductive Biology Unit in Edinburgh and in the Departments of Anatomy and Obstetrics and Gynaecology at Cambridge University. Research in reproductive technologies is also conducted at Glasgow University and the London Institute of Obstetrics and Gynaecology. Funds for this research are available from private and public sources.



"The Warnock Committee of Inquiry into Human Fertilization and Embryology convened in 1983 to examine the social, ethical and legal implications of recent developments in the field of human-assisted reproduction," according to Pat Spallone. The committee also reviewed infertility treatment for heterosexual couples and eligibility for IVF treatment.

The committee made several recommendations regarding the new reproductive technologies, including licensing and regulating the use of services and research. It recommended that experimentation on embryos should only be allowed for up to fourteen days. Commercial surrogacy arrangements, nonlicensed services, and research with embryos should be criminal offenses. The committee also felt that sex preselection should only be used for good medical reasons.

Although the Warnock Committee chose to study the areas where feminists have grave concerns, it failed to focus on the effects of the new reproductive technologies on women. Instead, it placed emphasis on the moral issue of making "perfect" babies for "perfect" couples. However, the Warnock Committee is important because it provided a forum for the debate on the ethical and legal issues in the new reproductive technologies. Furthermore, the committee's guidelines have been used as points of reference for other countries. The Warnock Committee guidelines are similar to guidelines issued in Australia, Canada, and the United States.

## ISRAEL

"The Jewish birth rate is a vital need for the existence of Israel and a Jewish woman who does not bring at least four children into the world is defrauding the Jewish Mission," according to David Ben-Gurion, the late Prime Minister of Israel. Infertility is consequently combatted there in many ways. Ninety-four percent of all hospitals in Israel have some kind of

infertility clinic, where couples are treated jointly.

Under Jewish law, genetic experimentation is forbidden. Surprisingly, Israeli law takes little notice of Jewish law since national priorities take precedence over religion regarding reproductive technology. There is currently a waiting list of three years for IVF treatment. Amniocentesis is given to all women over 37, and all women undergo at least two ultrasound scans during pregnancy.

Fertility is such a social norm that counseling and support groups for infertile couples are nonexistent. Interestingly, unlike many other countries, Israel has not experienced feminist resistance to the new reproductive technologies.

## JAPAN

In 1983, the first test-tube baby was born in Japan. Since then, over thirty such babies have been born. Approval for embryo freezing was granted in 1984. There are ethics committees in Japan which study the techniques of artificial insemination by donor or husband and in vitro fertilization. IVF is only offered to married women suffering from tubal obstruction, oligospermie, immunological fertility, and other unexplained forms of infertility. The use of donor sperms or eggs is not permitted.

Amniocentesis has been widely conducted in Japan since 1970. Ultrasound screening is done in the majority of hospitals. Japan's Eugenic Law of 1941 is still in effect, permitting abortion and sterilization only

under prescribed conditions. There are active feminist groups in Japan who are trying to monitor the reproductive technologies and to abolish the Eugenic Law. These groups have noted abuses in the experimentation on fetuses and in sterilization.

## THE NETHERLANDS

In the Netherlands, the first test-tube baby was reported in 1983. The success rate per cycle in IVF treatment there is 11.6 percent. This appears to be one of the highest success rates in the world, according to available statistics.

There are two features of the Netherlands IVF programs that distinguish them from other countries. One is the practice of IVF home births, and the other is the low incidence of cesarean sections. Ultrasound scanning is done at least once on pregnant patients in Dutch hospitals. Amniocentesis is provided at government expense to all women over 37 who request it. Genetic counseling is offered in the Netherlands and, in some instances, is covered by insurance.

The Netherlands' Health Advisory Council's Interim Report on in vitro fertilization has established guidelines for some of the reproductive technologies. This report recommended that hospitals with IVF clinics establish ethics committees. The council commissioned researchers from several disciplines to prepare guidelines for surrogate motherhood. They recommended that surrogates receive an honorarium, but not a fee.

Photo/Streehitakarini, Isis-WiCCCE



## WEST GERMANY

In West Germany, research in the area of reproductive technology has been going on for some time. In vitro fertilization is practiced and researched at most of the major hospitals. In Berlin, "Contraception research (endocrinological department) gained notoriety for its prostaglandin applications on women in Third World countries," according to one report.<sup>8</sup> In addition, various types of research on new forms of contraceptives are underway in West Germany. A focus of concern has been the large amount of research done on animals in reproductive technology.

Resistance to reproductive technology research in West Germany has been high: "One reason is many peoples' sensitivity when something reeks of eugenics.... A second reason is the existence of a core of well-informed 'expert' feminist natural scientists."<sup>9</sup>

In 1985, West German physicians developed guidelines for IVF. They state that only married women should undergo IVF. The guidelines oppose embryo experimentation, suggest banning surrogate motherhood because of the risk of commercialization, and oppose implanting leftover embryos in women who did not provide the eggs.

## CANADA

In Canada, there are nine in vitro fertilization clinics, three of them located in Toronto. Each clinic has established its own criteria for eligibility, in the absence of legislation relating to the new reproductive technologies.

In June of 1985, a Report on Human Artificial Reproduction and Related Matters was issued by the Ontario Law Reform Commission. The attorney general of Ontario requested that the law commission consider the legal issues involved in artificial reproduction and report on alternative resolutions for any legal issues that may arise. The attorney general stressed the need for such a report to protect the interests of children resulting from artificial reproduction. Nowhere does the report refer to protecting the best interests of women.

The commission, composed of five male lawyers, studied the areas of artificial insemination by donor, surrogate motherhood, and in vitro fertilization. They recommended that IVF be limited to "stable single women" and "stable men and stable women in stable marital or nonmarital unions."

## UNITED STATES

There is wide availability of artificial insemination by donor or husband, although the services are often denied to

single women and lesbians. In vitro fertilization is offered at 60 centers and 200 programs. Newer techniques include embryo flushing (transfer of an embryo from one woman to another) and gamete intrafallopian transfer (GIFT), a process in which eggs are not fertilized in a laboratory dish, but instead are transferred, along with the sperm, directly to the fallopian tube. Richard Asch of the University of Texas Health Sciences Center claims that GIFT has twice the pregnancy rate of IVF.

No federal laws have been passed regarding the new reproductive technologies, but a Congressional decision was made to avoid using public funds for experimentation on embryos. However, fetal research by private agencies continues.

The American Fertility Society has issued guidelines on reproductive technologies. Although the society concluded that most of the procedures in these technologies are "ethically acceptable," they did call for restrictions on more controversial practices, such as the use of surrogates to bear children for others. Their guidelines are similar to those issued in Australia, Britain, and Canada. Although the Australian and British reports did conclude that surrogate motherhood was unacceptable, the American Fertility Society left the door open to accepting the practice.

Even though feminists evaluating the new reproductive technologies have characterized all as controversial, the American Fertility Society and its eleven-member panel of experts cited only three techniques as controversial: surrogacy, the freezing of eggs or early-stage embryos, and artificial insemination for sex selection purposes. The society recommended that these practices be limited to experimental purposes only, until more data becomes available.

## REPRODUCTIVE TECHNOLOGY IN DEVELOPING COUNTRIES

Reproductive technologies in developing countries usually center around contraception, as opposed to the fertilization, insemination, and surrogacy techniques designed to increase pregnancies in industrialized countries. In Bangladesh, concern has focused on sterilization abuses and contraceptive activities which have not been approved in the United States. Sterilizations are by far the most widely used form of contraception in Bangladesh and many other developing countries. The next most widely used type of contraceptive is the injectable drug Depo-Provera, followed by the contraceptive Norplant, which is being pilot tested in ten countries.

All of these contraceptives are directly supported by foreign international organizations. Sultana Kamal of Bangladesh shared the concerns of many women from

developing countries: "With the expansion and commercialization of the new reproductive technologies, more and more people will be brought under the control system, ultimately resulting in fewer and fewer people having actual control over their own reproductive behavior.... In the past, breast feeding gave way to bottle feeding. Natural fertilizer was replaced by artificial fertilizer in agriculture, destroying the original fertility of the land. The fear that the new reproductive technologies may take over major responsibilities of procreation eventually does not sound so baseless."<sup>10</sup>

Female sterilization, a major but far-from-new reproductive technology, is the most widely used family planning and contraceptive method in the world. Sterilization is especially favored in developing countries where concern with population control is in the forefront of government policy. The pressure placed on Third World women to use permanent birth control methods raises some of the same ethical issues as those raised by the new reproductive technologies in western countries.

A major question that must be addressed is whether female sterilization procedures are voluntary, since women in developing countries have very few basic rights. Just as with other reproductive technologies, we hear that "this is what women want." But the women at the FINNRAGE conference expressed a need to monitor sterilizations in Third World countries, just as they are monitoring other reproductive technologies. This monitoring would be done to decrease abuses and ensure that the procedures were indeed voluntary.

There is also concern in developing countries over the abuses of amniocentesis and ultrasound scanning as methods for sex selection. In countries where the value of being female is very low and the demand for males is high, there is now a pattern developing where female fetuses are being aborted. In India, amniocentesis is used to determine fetal gender; females are aborted. In China, the policy of the one-child family encourages similar preference for males. These practices may lead to the further exploitation of women.

## REPRODUCTIVE MONITORING

Since there is almost nonexistent legislation on new reproductive technologies, it becomes critical for feminists to monitor the agencies who promote them. Most of the guidelines were formed by the same agencies that are developing these technologies. In a way, that's self-regulation of new reproductive technologies by the people who are creating them. Feminists can, therefore, provide a scientific critique of these technologies, an

CONTINUED ON PAGE 27

BY BETSY HARTMANN

**T**here isn't much understanding in some marriages. My sister has six, and another one has eight. And I said to one of them that she shouldn't have any more. And she said, "What can I do? When my husband comes home drunk, he forces me to sleep with him." And that is what happens to a lot of women. And if the women don't do it, the men hit them, or treat them badly. Or the men get jealous and think their wives must be with other men. And the women have to do whatever they say. I think it is changing a little, because the young women are more aware.

—RENE, a twenty-nine-year-old Peruvian woman, unmarried mother of one son

**I**t took place in the room of a gentleman whose name I did not know...it was fairly dark and the only light for the operation was an electric torch. Only the desire to get rid of the child I was carrying gave me the courage to stay. It was unthinkable that I should be expelled from college, and I couldn't bear my parents to find out that I was pregnant.

He began the operation. I felt a sharp and intense pain, worse than I had ever felt before. I wanted to cry out and scream. I felt as though part of my flesh was being ripped out by his metal instruments.... Gradually the pain lessened. I lay stretched out on the wooden table, almost unconscious, but only for a few moments. Then the man wrote a prescription and gave it to me, and showed me out....

This operation traumatized me and made me think that I might not be able to have children.... So when I did become pregnant, I felt so happy and liberated, as though I was being reborn....

Several years after we were married, my husband and I discussed my abortions. It turned out that my husband had known of the existence of contraceptives, but hadn't wanted to talk to me about it because he thought I was too young, and because he

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Photo/Grassroots International

thought it could have gone to my head and led me to go off with someone else.

—ALIMA, a thirty-year-old Senegalese woman who works as a secretary with a private firm in Dakar

**I** am Indrani from Sri Lanka. I was living and working in the tea estate area.... The only birth control method we know is sterilization....

All medical and social welfare staff, including foreign aid people, are forcing us to be sterilized.... The tea plantation community is given 500 rupees for a female sterilization, and in the rest of the country half of this amount is given. When there is a serious illness, the factory management are supposed to provide transport to the hospital. But even if someone is unconscious, they are not given transport. But when a woman decides to say yes for a sterilization, immediately the lorry is ready to go to the hospital.

During or soon after childbirth, women are asked if they want sterilization. When a woman does not agree, she can be refused work in the fields and she may be refused Thriposha (a protein-enriched flour, provided free by CARE). During the work in the fields, the supervisors are also encouraging women to be sterilized. If you do not agree to a sterilization after your second child, you are not admitted to hospital for your next delivery.

After sterilization, women feel very weak, and after years many still have complaints. Some women did not know that the operation is permanent and stops fertility forever.

—INDRANI, a member of the Tamil minority in Sri Lanka, who is now living as a refugee in India

# A WOMB OF ONE'S OWN

## The Real Population Problem

**O**n 1st March 1982, Mrs. K. gave birth by caesarian section to a second daughter. In the days following delivery, a young woman doctor put a great deal of pressure on Mrs. K. and her husband to sign forms of consent for what it appears were injections for rubella vaccination and Depo-Provera contraceptive cover. It seems no attempt was made to explain why the injections might be beneficial or the future effects or side effects of Depo-Provera. They were repeatedly told that the injections were a "good thing" and, as Mr. K. put it, "push, push, pushed" to have them. Mrs. K. was in fact readmitted to the Accident and Emergency ward twice and once for a longer stay to the hospital with massive bleeding in the two months that followed

the birth. The Ks seemed to think that this had something to do with these injections.

Although the Ks are native Bengali speakers, Mr. K. speaks reasonable English and understands more. I certainly found it perfectly possible to explain to him that Depo-Provera is a contraceptive—a fact which came as an obvious surprise to him.

—letter dated July 1982, from Bloomsbury Community Health Council, Great Britain<sup>4</sup>

Although Rene, Alima, Indrani, and “Mrs. K.” come from different societies and different walks of life, their experiences reflect a common plight: women’s lack of control over their own reproduction. Today what should be a woman’s birthright—the right to decide when to have a child and to practice safe birth control—is denied millions of women around the world. Pitted against them are a number of obstacles: economic discrimination, subordination within the family, religious and cultural restrictions, the nature of health care systems, and the distortion of family planning programs to serve the end of population control. Woman’s biology need not be her destiny, but today her reproductive fate is largely shaped by forces beyond her control.

## **BARRIERS TO REPRODUCTIVE CONTROL**

Although poverty and patriarchy serve as inducements to high fertility, it does not necessarily follow that women want to bear as many children as is biologically possible—eight, ten, even more. Many women would like to practice birth control, to space their pregnancies or to end them altogether once their need for children is met. What then is standing in their way?

A number of surveys have tried to provide a precise measurement of how many women would like either to limit or to space births. The recent World Fertility Survey, conducted in twenty-seven Third World countries, found that almost half the married women questioned wanted no more children, and that younger women especially tended to desire a smaller family size. In general, the number of women who wanted no more children exceeded the number of those using contraceptives, and this was interpreted as indicating a large “unmet need” for birth control.<sup>2</sup>

More compelling—though perhaps less “scientific”—evidence of women’s unmet need for birth control comes from women talking to women. For when women, even of different class and cultures, sit down and



Photo/Jim Yamin, Grassroots International

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speak seriously to each other, one thing that they share in common is both the blessing and curse of fertility.

In 1978, author Perdita Huston broke ground with her classic *Message from the Village*, based on in-depth interviews with village women from Kenya, Egypt, Sri Lanka, Tunisia, and Mexico. In almost every society she visited she found women eager to learn about birth control, although there were many obstacles in their way.<sup>3</sup>

Similarly, Audrey Bronstein, in her study of Latin American peasant women, reports:

Every woman I spoke to, with one exception, wanted reliable information about how to control her own fertility. The fact that most women had been forced to have more children than they wanted was the most damning evidence of the suffering and loss of human rights experienced by peasant women under the rule of both their husbands and the political factors controlling their lives.<sup>4</sup>

Similar findings have emerged from studies in Bangladesh, from a recent Oxfam survey of rural women in Kenya, from the reports of Third World women’s organizations.<sup>5</sup>

Why women want to space or limit births is not difficult to fathom. The physical hardship of repeated pregnancies can exact a terrible toll on a woman’s health. Between the ages of fifteen and forty-five, a woman in rural Bangladesh can now expect to have an average of eight pregnancies and to spend nearly seventeen years either pregnant or breast-feeding. This would be hard for any woman, but for already undernourished women the difficulty is greatly magnified. An estimated two-thirds of all pregnant women in the Third World are anemic.<sup>6</sup>

Childbirth literally kills hundreds of thousands of poor women every year. Maternal mortality rates in excess of 500 per 100,000 live births are not uncommon in many Third World countries, compared to 5 to 30 in the industrialized world.

Put another way, the complications of pregnancy account for between 10 and 30 percent of *all* deaths of women of reproductive age in areas of Asia, Africa, and Latin America, but less than 2 percent in the United States and Europe.<sup>7</sup> The risk is greater for women under twenty or over thirty-four, and for women who have borne three or more children and suffer from the nutritional maternal depletion syndrome.<sup>8</sup> Many women do not have access even to rudimentary medical care during childbirth, much less sophisticated emergency equipment, so that even minor problems can lead to death.

For desperately poor women, having many children can be a heavy economic and emotional burden. A Mexican woman told Perdita Huston: “If I am going to have more children, who is going to feed them? When my children are crying, is it God who comes to comfort them?”<sup>9</sup>

The large number of induced abortions that occur worldwide every year—an estimated 30 to 50 million—also reflects the desire of women to limit births. Half of these are illegal. The medical complications of improperly performed illegal abortions are now reaching epidemic proportions in many parts of the Third World, and represent a leading cause of death among women of childbearing age.<sup>10</sup>

In Latin America, where abortion is outlawed in most countries because of opposition from the Catholic Church, one fifth to one half of all maternal deaths are due to illegal abortion, and scarce hospital beds are filled with victims. In Bolivia, complications from illegal abortions

account for over 60 percent of the country's obstetrical and gynecological expenses.<sup>11</sup>

Seeking to limit their pregnancies, women, then, are also risking their lives.

Even in countries with liberal abortion laws, poor women often resort to illegal abortions because they lack access to legal abortion facilities or cannot afford to pay for the legal operation. In 1978, six years after the enactment of India's relatively liberal abortion law, for example, there were only 1 million legal abortions in the country compared to an estimated 5 million illegal ones.<sup>12</sup>

Recourse to dangerous illegal abortion not only underlines the need for widespread, cheap, legal abortion facilities, but the need for access to safe contraceptive alternatives. The problem is not simply supply—in many Third World countries the per capita availability of contraceptives is quite high—but more fundamental social barriers blocking women from contraceptives.

Male dominance is one of the strongest obstacles. In most cultures wives must have their husband's consent before they can decide to limit their fertility. And many men are reluctant to agree: They fear the possibility of their wife's infidelity or the loss of their control over her. As a doctor in a rural Mexican clinic explained to Perdita Huston,

When a wife wants to do something on her own, such as trying to limit the number of mouths to feed in the family, the husband will become angry and even beat her. He thinks it is unacceptable that she is making a decision on her own. She is challenging his authority, his power over her—and thus the very nature of his virility.<sup>13</sup>

Not surprising, in the households where men and women share power more equally, acceptance of family planning is much higher.<sup>14</sup> Including men in discussions with family planning workers also seems to make a difference. But more often than not, family planning programs are geared exclusively toward women, ignoring the basic reality of male dominance.

Male control of the medical profession also discourages many women from visiting family planning clinics. As a Mexican anthropologist explains:

A woman is supposed to be the property of one man: her husband. If she goes to a clinic another man, the doctor, is going to see her and touch her. Her husband won't let her go...and she, too, is reluctant. This is a great barrier to the acceptance of family planning in Mexico.<sup>15</sup>

In many Muslim cultures the problem is



Photo/Chris Carter, Grassroots International

The fact that most women had been forced to have more children than they wanted was the most damning evidence of the suffering and loss of human rights by women.

intensified by the practice of female seclusion. If no men other than a woman's husband and close male relations are allowed to see her, much less touch her, how likely is it that she will be able to consult a male doctor about family planning?

More female doctors and health workers are only part of the answer, however, for the problem lies more fundamentally in the very nature of health services. In most Third World countries, the scant resources devoted to health are usually spent in urban areas, on modern hospitals which serve a small elite. In rural areas, where people lack access to even rudimentary health care, they also usually lack access to decent family planning services. In Kenya, 58 percent of married women between the ages of fifteen and forty-nine who are exposed to the risk of pregnancy do not even know where they can obtain modern methods of contraception; in Mexico, the

figure is 47 percent.<sup>16</sup>

Even when people do know where to get contraceptives, the time it takes to travel to a clinic, wait there, and return serves to discourage them—in Kenya, such a journey typically takes six hours. And once at the clinic, Kenyan women are sometimes refused birth control, especially if they are young and unmarried.<sup>17</sup> For people who can hardly afford basic medicines, the cost of contraceptives can also be prohibitive.

Many Third World health systems prefer modern Western-style medicine, undervaluing traditional forms. For family planning, this means that birth control methods in use for generations, whether they be herbal pessaries, withdrawal, abstinence, or prolonged breast-feeding, are passed over in favor of modern contraceptives, which are often less culturally acceptable and more disruptive of traditional practices. A Nigerian doctor warns of the implications for Africa: "The impact of a carelessly designed family planning program that may interfere with local beliefs and constraints can only serve to increase fertility levels."<sup>18</sup>

In order for women to feel confident about contraception and to use it effectively, they need to understand how the reproductive system works. Basic health education, however, is seldom emphasized in most health care systems or family planning programs. Even in an industrialized country like the United States, sex education is a source of endless controversy, for keeping women in the dark about their bodies is another powerful way of keeping them "in their place."

In many countries organized religion also presents a barrier to women's use of contraception. This is most obvious in the case of the Catholic Church's condemnation of all "artificial" forms of birth control. In the Church's view, using contraceptives or having an abortion is a sin.

In the case of Islam, according to Egyptian feminist Nawal El Saadawi, nothing in the *Koran* either explicitly supports or opposes contraception. Thus among Islamic religious authorities, some "maintain that Islam approves of family planning and even abortion; yet others hold firmly to the position that Islam not only opposes abortion, but even the utilization of contraception." In the Arab world, she maintains, it is not religion per se that is the issue, but the way religion is used "by those who rule to keep down those who are ruled."<sup>19</sup>

Many governments also follow pronatalist policies in the belief that an expanding

population is vital to national development, prestige, and security. In sub-Saharan Africa, for example, five countries—Chad, Ivory Coast, Gabon, Guinea-Bissau, and Mauritania—do not support family planning, and until recently the number was much higher.<sup>20</sup> To facilitate economic growth (and some speculate to increase the proportion of the Malay ethnic group in the population), the Malaysian government wants to achieve a fivefold increase in the population over the next 115 years. The Prime Minister is telling families to “go for five” children.<sup>21</sup>

In Latin America the Catholic Church has prevented many governments from establishing national family planning

programs. In Peru, for example, the Church helped to block the implementation of the government's 1977 Population Policy, which called for voluntary family planning services, and recently succeeded in pressuring the government to eliminate voluntary surgical sterilization as a birth control method. As a result, only the most privileged Peruvian women have access to modern forms of contraception, and thousands of women are forced each year to resort to dangerous illegal abortions.<sup>22</sup> Left-wing movements in Latin America have also tended to oppose family planning, failing to distinguish between population control interventions from abroad and women's real need for birth

control. However, this opposition is beginning to fade under the influence of feminism.

Unfortunately, many governments that have implemented national family planning programs have done so not for reasons of women's health or reproductive freedom, but because of pressure from international donors to control population growth. Ironically, population control itself often blocks women's access to safe birth control.

The issue goes far beyond the simple question of contraception to involve power relationships at almost every social level, from the family on up to the national government. Recognizing this basic reality, many feminists today are defining reproductive rights much more broadly. Their demands include the following:

- The right to economic security through the opportunity to work for equal pay for equal work, so that women can adequately care for themselves and their families.
- The right to a safe workplace and environment for all, so that women are not exposed to hazards that threaten their ability to bear healthy children, or forced to choose between sterilization and jobs.
- The right of quality child care, so that women can enter the work force secure in the knowledge that their children will be looked after.
- The right to abortion and contraceptive choice.
- The right to reproductive education, so that women and men of all ages are better able to understand and control their own bodies.
- The right to decent medical care, necessary not only to ensure contraceptive safety, but a basic human right.
- The right to choose how to give birth, and to have control over the development and use of new reproductive technologies.
- The right of lesbian women and women with disabilities to be mothers.
- The need for men to participate as equal partners in childbearing, housework, and birth control, so women no longer have to shoulder the “double burden.”
- An end to discrimination so that all people—regardless of race, sex, or class—can lead productive lives, and exercise real control over their own reproduction.<sup>23</sup>

Clearly, reproductive rights are predicated on achieving basic rights in almost every sphere of life. For while reproduction may be an intensely personal experience, it is also a fundamentally social one, at the center of a web of human relations. It is important never to lose sight of the whole while focusing on the center. Indeed, it is the failure to see the whole that lies behind the narrow conception and single-minded pursuit of population control.

## NOTES

1. Peruvian quotation from Audrey Bronstein's interview notes for *The Triple Struggle: Latin American Peasant Women* (London: War on Want Campaigns Ltd., 1982); Senegalese quotation from Mariama Kamara, “Bearing the Brunt,” *People*, (IPPF), vol. 10, no. 4 (1983), pp. 17-18; Sri Lankan quotation from “Population Control Practices on the Tea Plantations of Sri Lanka,” statement delivered at Women's International Tribunal and Meeting on Reproductive Rights, held at Amsterdam, 22-28 July 1984; U.K. letter from Marge Berer, *Who Needs Depo-Provera?* (London: Community Rights Project, July 1981), p. 25.

2. Robert Lighthouse Jr. and Susheela Singh, “The World Fertility Survey: Charting Global Childbearing,” *Population Bulletin*, vol. 37, no. 1 (March 1982), pp. 42-43. See also *ibid.*, p. 130.

3. Perdita Huston, *Message from the Village* (New York: Epoch B Foundation, 1978).

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5. On Bangladesh, see Betsy Hartmann and James K. Boyce, *A Quiet Violence: View from a Bangladesh Village* (London: Zed Press; San Francisco: Institute for Food and Development Policy; India: Oxford University Press, 1983), and Jenneke Arens and Jos van Beurden, *Jhagrapur: Poor Peasants and Women in a Village in Bangladesh* (Bombay: Orient Longman, 1979), and Loes Keyzers, *Does Family Planning Liberate Women?*, Master of Development Studies thesis (The Hague: Institute of Social Studies, May 1982). On Kenya see Gill Shepherd, *Responding to the Contraceptive Needs of Rural People, A Report to OXFAM on Kenya in 1984* (Oxford: OXFAM, 1984). There are serious limitations to Shepherd's interview methods, however, since she frequently began her discussions with women by stating that Kenya had an urgent need for population control. For statements by Third World women's organizations, see *Divided in Culture, United in Struggle*, Report of the International Tribunal and Meeting on Reproductive Rights, Amsterdam, 22-28 July 1984 (Amsterdam: Women's Global Network on Reproductive Rights, 1986).

6. Bangladesh statistics from Zafrullah Chowdhury, “A Double Oppression in Bangladesh,” in Bair, ed., *Health Needs*, p. 5. Anemia statistic from Debbie Taylor, “Women: An Analysis,” in *Women: A World Report* (London: Methuen Ltd., 1985), p. 43.

7. World Health Organization, Division of Family Health, *Health and the Status of Women* (Geneva: 1980), and “Healthier Mothers and

Children Through Family Planning,” *Population Reports*, Series J, No. 27 (May-June 1984), p. J661.

8. Kathleen Newland, *The Sisterhood of Man* (New York: W.W. Norton and Co., 1979), p. 52.

9. Huston, *Message from the Village*, p. 131.

10. *World Development Report 1984*, p. 130, and Population Crisis Committee, “World Abortion Trends,” *Population*, no. 9 (April 1979).

11. World Health Organization, “Health and the Status of Women.” Bolivian figures from Newland, *The Sisterhood of Man*, p. 61.

12. Population Crisis Committee, “World Abortion Trends.”

13. Huston, *Message from the Village*, p. 119.

14. See Christine Oppong and Elina Haavio-Mannila, “Women, Population and Development,” in Philip M. Hauser, ed., *World Population and Development* (Syracuse, N.Y.: Syracuse University Press, 1979), p. 480.

15. Huston, *Message from the Village*, p. 109.

16. *World Development Report 1984*, p. 135.

17. On travel time, see Shepherd, *Responding to the Contraceptive Needs*, p. 8. Refusal of birth control, personal communication with Paula Park.

18. Dr. S. Okun Ayangade, *International Journal of Obstetrics and Gynecology*, vol. 15, no. 6 (1978), p. 499, quoted in Waife, *Traditional Methods of Birth Control*.

19. Nawal El Saadawi, “On Women's Shoulders,” *People*, (IPPF), vol. 6, no. 4 (1979). This article is an excerpt from her book *The Hidden Face of Eve: Women in the Arab World* (London: Zed Press, 1979).

20. See World Bank, *Population Growth and Policies in Sub-Saharan Africa*, p. 60.

21. Gavin Jones, “Towards an Optimum Population: The Malaysian Case,” *People* (IPPF), vol. 12, no. 4 (1985).

22. Peru information from Rosa Domingo Trapasso of the Peruvian women's group Promocion Cultural “Creatividad y Cambio.” A coalition of Peruvian women's groups has now mounted a campaign for public family planning services.

23. Thanks to Adele Clark for drafts of articles on this subject. List is also drawn from literature of various reproductive rights organizations. Also see Adele Clark and Alice Wolfson, “Socialist-Feminism and Reproductive Rights: Movement Work and Its Contradictions,” *Socialist Review*, vol. 14, no. 6 (November-December 1984).



Photo/Ellen Shub

# TECHNOLOGY & COOPTATION

BY MARIAMNE H. WHATLEY  
AND NANCY WORCESTER

**T**he women's health movement has been one of the most visible and best-received aspects of the women's movement. Since the late 1960s, groups of feminists throughout the U.S. and the world have critiqued curative medical systems that are based on the values of the male medical establishment. Attention was drawn to the sexism, racism, classism, and homophobia of the health care system. The pivotal role of women in health care decisions for the family was identified.

Osteoporosis  
Screening  
and  
Women's  
Health

Health activists worked for health care services accessible to *all* women and for information which would enable women to understand their bodies and health issues so that they could be involved in health care decisions. Self-help groups, women-controlled health centers, campaigns such as that against sterilization abuse of women of color, women's health courses, national organizations—including the National Women's Health Network—and books such as *Our Bodies, Ourselves* are representative of the work of the women's health movement.

A recognition of the need for fundamental changes in both health care provision and

women's role in society has been central to the analysis and work of the women's health movement. When possible, the medical establishment has ignored the women's health movement. But when the demand for change could not be ignored, the medical response has been to coopt the movement.<sup>1</sup>

In the 1970s hospitals defused the call for women-controlled childbirth by promising to offer a combination of the latest technology with a warm, nurturing home environment. Basically, such birthing centers coopted the movement against medicalized childbirth by providing surface changes which did little to alter who controlled birthing "options."

Now, a decade later, with a limited population of pregnant women to draw on, medical facilities are concentrating on marketing services to healthy women with money. In the 1980s, as in the 1970s, instead of making real changes which could make health services more appropriate to the needs of all women, the medical establishment is coopting the women's health movement.

The new marketing drive is based on the economic premises originally identified by the women's movement: that women use health care facilities more than men and that women often choose health care facilities and providers for the entire family. As part of this trend, using language and style that mimic that of the women's health movement, a new range of services is being promoted.

For example, new women's health centers have translated the feminist call for demystification of medical technology and the right of all women to be actively involved in decisions about our own bodies into the provision of consumer information. Advertisements focus on the availability of libraries, seminars, hotlines, and resource people, all in a comfortable environment. While, on one level, the provision of free resources to women should be applauded, it must be remembered that hospitals will not be making any money from these services. Clearly, these much-needed resources are being used as a way to attract women to medicine's money-making services.

This article specifically examines the role of technology in this recent marketing of services to healthy women. The example of bone mass measurement

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through osteoporosis screening demonstrates how expensive tests are being marketed in campaigns directly contradictory to the goals of the women's health movement. First, we look at how marketing both creates and exploits the prevention-conscious mentality and intentionally plays on women's fears. Next, we discuss criteria by which the technology for bone mass measurements can be evaluated. Then, considering the complexities and controversies surrounding these particular

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Instead of making real changes which could make health services more appropriate to the needs of all women, the medical establishment is coopting the women's health movement.

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techniques, we explore the range of information which should be available to women when they are choosing whether to undergo bone mass measurements.

### PREVENTION CONSCIOUSNESS

Contemporary U.S. society, especially the middle class, is highly health conscious. Even casual observation of television advertisements in which bran cereals are pushed to prevent cancer, low-cholesterol foods are touted to reduce heart attack risk, and exercise machines are sold to promote "wellness," reveals the dominance of the prevention ideology in health awareness.

The focus on prevention is part of an overall trend among consumers, away from the sick-care model of the medical industry. This medically controlled model devotes less than ten percent of health expenditures to environmental and occupational issues, disease detection and control, medical education, and research. Instead, resources are directed towards drugs, surgery, hospitals, and high-technology equipment. This sick-care model may do a miraculous job of patching up accident victims or putting a new heart into someone who has eaten an all-American diet, but it does practically nothing to keep us well.

For many, the resistance to this medical

model may be political, based, for example, on the analysis generated by the women's health movement. Prevention becomes a way of wresting control away from doctors and returning it to consumers.

Ironically, though the emphasis on prevention originated as a way to become less dependent on the medical establishment, it is now being used as a marketing technique to attract people back in. Women are the major customers of prevention services. In her seminars on marketing women's health, Sally Ryne notes that eighteen percent of women's medical visits are preventive, that women are the major subscribers to prevention and wellness-type magazines, and that the audiences at health promotion programs are predominantly women.<sup>2</sup> Not surprisingly, the new women's health centers present themselves as having a prevention focus, providing specific information on the role of exercise, diet, stress management, and the judicious use of medical technology in health promotion.

The last item on that list is out of place for two reasons. Unlike the other services, medical testing is the only potential money maker for the centers. Second, these tests are not *preventive*. Even though early detection may improve prognosis, it does not prevent the disease. For consumers, having a procedure labeled as "preventive" makes it highly attractive. Marketing of medical services and technologies can capitalize on this by deliberately blurring the distinction between early detection and prevention.

### SELLING THE FEAR FACTOR

In order to maximize the market value of "prevention," the condition to be avoided must be sufficiently serious. Individuals either must view the disease in question as highly prevalent or believe themselves to have a high level of personal susceptibility. Fear can become an important selling point for either true preventive measures or early detection tests.

As diseases become "popular," there is a time of intense interest, during which we are inundated with media coverage of the newest plague, whether it is genital herpes, toxic shock syndrome, premenstrual syndrome, or chlamydia. Accurate and complete information is needed about all these issues; increased awareness is essential for all individuals who want to control their health. However, sensational media coverage often does little besides create fear, as the AIDS panic clearly demonstrates. Those who benefit from this sensationalized coverage are those who offer prevention or treatments, whether they are effective or not.

If the disease is not exciting enough to make a good cover story, advertising campaigns can be conducted. When the

pharmaceutical company Ayerst hired a public relations firm to conduct an educational campaign on osteoporosis, a survey found that 77 percent of women had not heard of this condition.<sup>3</sup> Now, women have not only heard of it, but they are also frightened of the seeming inevitability of postmenopausal hip fractures or of becoming the elderly woman with the severely bent spine in calcium advertisements.

Because of media coverage, advertising campaigns and public health education, health centers do not have to work to create awareness and fear of the diseases of interest. To gain clients, these centers only need to capitalize on that awareness and fear to sell the use of technologies for early detection. Sometimes the selling of the "fear factor" may be a deliberate strategy; in other cases it may be an accidental offshoot of another marketing approach.

For example, women do not need to be told that breast cancer is a highly prevalent, very serious and often fatal disease. Those who play on women's fears of this disease can draw them into educational seminars, breast self-exam lessons, and finally to mammography screening. As in this example, technology is often presented as the ultimate answer to women's fears, but closer examination of the assumptions behind these claims is needed.

### ASSESSING SCREENING TECHNOLOGIES

In order to evaluate the potential usefulness of mammography or any other screening program, a number of factors must be considered. In the excitement generated by a new technology, it is sometimes forgotten that "the mere existence of unrecognized cases of illness is, by itself, insufficient reason to screen."<sup>4</sup> The true value of a screening program is in the identification of cases that would not have been detected otherwise, or would have been detected at a time when treatment would be less effective or more expensive.<sup>5</sup> Inherent in this statement is the assumption that effective treatment exists (unless it is screening aimed only at preventing spread of the disease). If the early detection does not in any way alter the course of the disease, then the value of the screening for the individual is lost.

Unfortunately, enthusiastic evaluations of screening programs may attribute all cases detected to the screening, without distinguishing cases that might have been identified in other ways. Another problem is that proponents of a program might assume identification a worthy end in itself, without questioning whether early detection necessarily means a better prognosis.

An evaluation of a screening program must also measure the effectiveness of the



Photo/Ellen Shub

test being used; ideally, tests in a screening program will be both sensitive and specific. Sensitivity is the percent of disease cases identified by the test. A high degree of sensitivity means that few cases slip through undetected; false negatives, accompanied by a potentially dangerous false sense of security, are minimized. Specificity is the percent of unaffected people correctly labeled. High specificity means great accuracy, and few false positives. The incorrect identification of disease could lead to unnecessary, potentially expensive and dangerous treatments and tests, as well as possible psychological harm from inappropriate labeling.

In summary, a good screening program will: provide early identification of a condition; lead to an improved prognosis; and be highly accurate, both sensitive and specific. In discussing bone mass measurements, we will use these criteria as part of the evaluation of this technology.

## OSTEOPOROSIS SCREENING

Osteoporosis is an excellent illustration of the problematic relationship between the medical system and women who use it. In previous years, the lack of medical attention to women's health needs, particularly those of older women, and the neglect of information about self-help approaches to prevention have characterized the response to this prevalent and potentially serious condition. In the U.S.

annually, more than 1.6 million fractures in women over age 50 are due to osteoporosis.<sup>6</sup> However, until recently, very little information was available and most women had never even heard of osteoporosis.

The lack of research on osteoporosis could be viewed as an indication of the lesser importance ascribed to women's health issues. If at around age 50 men became at risk for a disabling disease, more effort might go into searching for answers. In fact, that is the case with the "men's disease"—cardiovascular or heart disease. Osteoporosis has been labeled as a women's disease because, although the age-related loss of bone mass occurs in both men and women, women are more likely to experience problems at an earlier age. The fact that white women are more at risk than black women may account for the attention that this condition has finally received.

In addition, since curative medicine has such a little role to play, whereas prevention is an important factor, osteoporosis does not fit the medical model in the United States. Information indicates that limited physical activity and low dietary calcium increase risk, so logical preventive measures are available. However, this information was generally not presented by health care practitioners who were more likely to prescribe estrogen if they dealt with the problem at all.

This situation has changed dramatically in the last few years. Osteoporosis can no

longer serve as an example of the neglect of older women's health issues. It might seem that feminist health activists should be applauding the response of the medical establishment. Research on osteoporosis is suddenly well funded and information is so readily available that few women could fail to be aware of this issue. Any woman approaching menopause is likely to receive information from her health care practitioner on the dangers of osteoporosis. So why are we complaining? Aren't feminists ever satisfied?

## THE SELLING OF OSTEOPOROSIS

To begin to answer that question, we can first examine the sources and content of the information. Beginning in 1982, an education campaign was sponsored by Ayerst Laboratories to create public awareness of osteoporosis as a major women's health issue. This campaign used radio, television, and magazines, including articles in *Vogue*, *McCall's*, and *Reader's Digest*.<sup>7</sup> As the manufacturers of Premarin, a popular form of estrogen replacement therapy (ERT), Ayerst certainly benefitted from awareness of this issue. Women who seek advice from physicians about prevention might easily end up with a prescription for ERT.

Calcium manufacturers have similarly benefitted from the media attention that they helped focus on studies linking calcium deficiency to osteoporosis. In 1980, retail sales of calcium supplements



Photo/Ellen Shub

totalled \$18 million. With increased public awareness, these sales were projected to total \$166 million in 1986.<sup>8</sup> A calcium-fortified, sugar-free drink mix was recently test marketed, and the addition of calcium to Tab has nearly tripled the sales of this diet cola in some markets.<sup>9</sup>

Cholesterol consciousness may have reduced the sales of dairy foods, but the dairy industry has launched a campaign to counterbalance these losses with the theme, "Dairy foods. Calcium the way nature intended."<sup>10</sup> The recent cautionary note that calcium might not be effective in prevention<sup>11</sup> has not changed calcium promotion.

Two major factors may contribute to the success of osteoporosis-related advertising: the prevention consciousness in our society and the fear of aging. Many advertisements play on both of these, such as the spot for a calcium supplement that shows a healthy 30-year-old woman transformed to a stooped 65-year-old in thirty seconds.<sup>12</sup> While such an image capitalizes on the fear of losing youthful beauty, it draws on even deeper fears of disability leading to loss of independence.

The information on hip fractures is equally frightening. For example, a popular guide to preventing osteoporosis states: "The consequences of hip fractures can be devastating. Fewer than one half of all women who suffer a hip fracture regain normal function. Fifteen percent die shortly after their injury, and nearly 30 percent die within a year."<sup>13</sup> The fear for women is that, even if they survive a hip fracture, they may face long years of dependence and immobility.

Unlike the situation in the past, health care practitioners are now very aware of osteoporosis. Many of the new women's health centers offer osteoporosis counseling and the topic appears regularly in the educational programs they sponsor. In addition to providing information and counseling, these centers can now offer noninvasive bone mass measurements, billed as "screening" for osteoporosis. About 500 clinics offered this service in 1986, having grown in numbers from only 25 in 1984.<sup>14</sup> Some advertisements for the clinics suggest that most women from 45 to 70 should be screened for osteoporosis.<sup>15</sup> A belief in the benefits of early detection coupled with the fear of disability with aging make this screening very attractive for a woman who can afford the procedure.

## MEASURING BONE MASS

Finding a noninvasive way to predict a woman's risk for fracture may seem a benefit of medical science with which few could find fault. Certainly, the prevalence and potential consequences of osteoporosis are serious enough to justify screening. However, an evaluation of the criteria dis-

cussed earlier in this article reveals a very different picture. According to the criteria, it is important to determine whether the procedure provides early identification and, if it does, whether that will affect prognosis.

In examining the question of whether bone mass measurements actually provide early identification of osteoporosis, it should be clarified that several techniques are currently being used. These techniques vary in availability, expense, and reliability.

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The most available technique for osteoporosis screening, single-photon absorptiometry (SPA), is the least expensive at \$40 to \$120 for a single examination. However, SPA measures the wrist bone, which is a different type of bone than found in the hip and spine, where the most serious fractures are likely to occur.

Extrapolation from wrist measurements are of little value no matter how accurate they are and cannot be substituted for direct vertebrae measurements.<sup>16</sup> Direct measurements of the vertebral bone, possible with dual-photon absorptiometry (DPA) or computed tomography (CT), require a high degree of technical expertise to obtain accurate measurements, and are quite expensive, ranging from \$100 to \$300 for each test.

A screening procedure which is expected to provide early detection should certainly be able to identify full-blown cases of the disease. Bone density screening would be expected, therefore, to be able to differentiate between those who do and do not have osteoporosis-related hip fractures. However, these measurements are of little use in the elderly at-risk population because, as Susan Ott states: "If the highest bone mass seen in patients with fractures is designated as the 'fracture threshold,' then

nearly all women over 70 will by definition have osteoporosis."<sup>17</sup> Many factors besides bone mass (such as proneness to falling and the inability to protect oneself from injury during a fall) affect the chance of fractures.<sup>18</sup>

Given that this screening cannot identify those at risk for hip fracture, can it detect those who will experience a high degree of bone loss? Knowing someone's bone mass at age 45 does not help one to predict how fast they may lose bone mass; a woman with a low bone mass may end up losing at a very slow rate and a woman with a much higher bone mass may end up losing rapidly.<sup>19</sup>

Even if the rate of bone loss over a certain time span could be accurately measured, the rate will not be constant and predictable. It is known that women lose bone most rapidly in the five to six years immediately following menopause. After that, a woman's rate of bone loss slows down, again becoming similar to that of men. To monitor bone loss, expensive multiple measurements would need to be made and even then the predictive value in terms of fracture is highly uncertain.<sup>20</sup> Early measurements are being encouraged as a baseline by which to compare future measurements for assessing bone loss. But repeated measurements are useful only if a high degree of reproducibility is assured.

This leads to another criterion—accuracy. The major weakness of lack of reproducibility overshadows any evaluation of specificity and sensitivity. Cummings and Black point out that the reports of greatest reproducibility come from research centers, often using bone specimens, under highly controlled research conditions. Applying these techniques in clinical settings on real people is much more difficult. Any changes in equipment, technicians, software, radiation levels, or positioning of the person can alter results. For example, using computed tomography, a slight change in the area of the vertebrae measured can make up to a thirty percent difference in results.<sup>21</sup>

The problem of not being able to provide good reproducibility in a given setting is exaggerated by the fact that the population is fairly mobile. Many women who have a baseline reading done at age 45 will end up in different locations for future measurements.

Another major criterion for evaluation is whether the screening results would actually change the prognosis by altering the course of treatment or prevention. Knowledge of bone mass should have no impact on a woman's decision to take calcium or do weight-bearing exercise, since these are currently recommended as important preventive measures for all women.

Therefore, information about current bone mass or rate of loss would play a role only in a woman's decision about the use of Estrogen Replacement Therapy (ERT). However, other factors may play a much more important part in the ERT decision. For example, a woman may base her decision on increased cancer risk, contraindications, or the use of ERT for other problems, such as hot flashes or vaginal atrophy. Unless a woman's decision about ERT will depend predominantly on information obtained by bone measurements, this information is of little value.<sup>22</sup>

Evaluating osteoporosis screening on the criterion of whether the screening results in altering the course of treatments highlights a major risk of the screening. This new technology could easily lead to more medical intervention in the form of increased prescribing of ERT. Thus, a debate about the risks and benefits of ERT should be seen as central to questioning the value of bone mass measurement.

Hormone replacement therapy (HRT), containing both estrogen and progesterone, is increasingly marketed as safer than ERT. The addition of progesterone appears to counter the increased risk of endometrial cancer associated with ERT. The effectiveness of HRT in preventing osteoporosis is an issue needing much more research. Even if screening could accurately predict osteoporosis, it is not clear how effective HRT would be in preventing bone loss.

Currently, bone mass measurements have limited clinical value, though they may have important research potential. No matter how refined the technology becomes, certain problems remain. The existence of noninvasive methods for measuring bone mass combined with the high prevalence and serious consequences of osteoporosis does not add up to a justification for recommending osteoporosis screenings. The serious consequence of hip fracture cannot be predicted using these technologies. Though there may be slightly higher predictability for vertebral fractures, the only outcome of this screening may be increased ERT prescription.

By capitalizing on the fear of a disabling condition, clinical centers have been selling women an expensive technology of dubious clinical or preventive value. As an editorial on the subject appropriately concludes: "At this time, the use of these tests for screening perimenopausal women is premature, albeit profitable."<sup>23</sup>

## CONCLUSION

As competition among health care facilities escalates, women's health

centers have developed as a way of attracting an economically comfortable, health-conscious, and healthy population. Intense marketing campaigns, using newspaper and television advertisements, direct mailings, and free lecture series, promise "total" health care for women of all ages. Some of this advertising seems to echo the goals of the women's health movement, offering women practitioners who "care," longer scheduled appointments, free educational programs, resource centers, and information necessary to make informed decisions, all in a comfortable environment. None of these aspects of health care are profitable in themselves, but they do serve to attract women to these centers.

The availability of a technology such as bone mass measurement can serve both as a selling point for a clinic and as a profitable service in itself. Unfortunately, these technologies are marketed not with an honest assessment of their value, but by manipulating fear of a specific disease and by playing on the tendency to confuse detection with prevention. At this point, there is very little value in offering bone mass measurement for osteoporosis screening, though its research potential is excellent.

Cooptation, 1980s style, presents new challenges for the women's health movement. Now that women's health has been "discovered" as an area offering tremendous market potential, it is more important than ever that feminist activists evaluate and critique these services. Appropriation of the rhetoric of the women's health movement by the new women's health centers must not replace

movement voices calling for fundamental changes in health care provision.

For years, activists have been saying that issues such as premenstrual tension and osteoporosis need to be taken more seriously. Now these problems are being taken seriously, but they are being used to medicalize whole new areas of women's lives. The women's health movement must continue warning that wider interest in these areas can be used against women (especially the media coverage of premenstrual syndrome), that drugs must not be seen as the solution to "problems," and that technological fixes cannot substitute for real prevention.

Much of the marketing of women's health care goes against all that health activists have fought for. We must not lose sight of the fact that huge expenditures are going into technology, which even if useful, will be available to only a select segment of the population. Making health care truly accessible and appropriate to all women is still the primary goal of the movement.

*This article is excerpted from the paper "The Role of Technology in the Cooptation of the Women's Health Movement: The Case of Osteoporosis and Breast Cancer Screening," which was presented at the Women, Health and Technology Conference held at the University of Connecticut on October 23, 1986. It will be published later this year in a collection of papers from this conference; contact the Project on Women and Technology, Women's Studies Program, University of Connecticut, Storrs, CT 06268 for further information.*

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John Klossner

# DIAGNOSTIC DILEMMAS

BY S.A. SPITZ

**T**he case was typical: a young married woman complaining of joint swelling and aching, fatigue, abdominal pains and daily fevers to 101 degrees. Her doctor's analysis was also typical: Some people's joints swell occasionally. He accused that *he* didn't see any swelling or fever *now*.... Her husband's protests that *he* had seen the swelling and read the thermometer were to no avail. Psychiatric help was the suggested treatment.

Anyone who has ever studied medicine should know that this patient is presenting with symptoms typical of either lupus or rheumatoid arthritis, for starters. But a 20-minute interview with a psychiatrist merely produced a diagnosis of major depression. And two-and-a-half hours with a psychologist resulted in an assessment of "mild anxiety." They may both be right. By the time this patient has made the medical rounds, she is quite likely

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## Learning to Look and Listen

to be both depressed *and* anxious.

It probably won't improve her mood to learn about a study showing psychiatrists who referred patients to a psychiatric outpatient program failed to recognize major physical illness in 48 percent of their referrals, while medical doctors missed major physical conditions in 32 percent of their referrals. Or that over the past quarter century, studies have consistently shown average accuracy of medical diagnosis at only fifty percent. That's right—the average patient has only a 50:50 chance of

being correctly diagnosed and treated when he or she consults professional medical help.

In fact, former editor of the *New England Journal of Medicine*, Franz Ingelfinger, once pointed out that assuming eighty percent of illnesses to be either self-limiting or untreatable, that leaves twenty percent that could benefit from medical intervention—but in about nine percent of such cases, "give or take a point or two, the doctor may diagnose or treat inadequately, or he may just have bad luck. Whatever the reason," concludes Ingelfinger, "the patient ends up with iatrogenic (doctor-caused) problems. So the balance of accounts ends up marginally on the positive side of zero."

Her physical symptoms now pretty much to one side, our puzzled patient is spending precious time and effort trying to sort out how two mental health professionals can have come up with two such different diagnoses—particularly when the diagnostic criteria for depression as delineated in the DSM-III, psychiatry's diagnostic bible, do not seem to fit her symptoms. That is why she is now consulting a radio psychiatrist

who, fortunately for her, has grasped the central issue here—the swelling, aches, abdominal pain and fevers—and is advising her that, although this doesn't mean her first internist isn't a "good" doctor, she would be wise to try another internist.

If this woman is lucky, her second try will produce an investigation of her physiologic condition—maybe even a diagnosis and treatment. But if she is more typical of the millions of "problem"

We close our ears to bits of history which seem out of place, or to noises coming down our stethoscope which are not included in the catalogue of official sounds we have been taught to recognize.

patients regularly labeled "turkeys," "crocks," and "hypochondriacs" by frustrated physicians, she may consult five to twenty—even thirty—doctors, and find that her search for medical help is costing her years, thousands of dollars, and the possible breakdown of her family relations (some eighty percent of marriages involving chronic illness end in divorce, with husbands more often leaving disabled wives)—all because a doctor didn't *listen* to a patient, didn't *look*, and didn't *think*.

Medical training is supposed to provide a framework in which to perform these vital functions, and a crucial part of the framework is the medical history. In fact, the medical history has repeatedly been shown to constitute some eighty percent of correct diagnosis. But doctors are conditioned to believe that patients and their families can't have much of relevance to say about their medical conditions (even, ironically, when the patient happens to be another doctor). Medical texts and the physicians who train on them speak of incoherent patients, deficient in powers of observation or communication, who "filter" descriptions of their symptoms through a variety of uncertain backgrounds.

Of course doctors filter too, by a well-

known process called "hindsight bias:" ignoring phenomena—symptoms, signs, test results—that don't seem to fit preconceived notions. So a recent study of M.D. house officers and faculty discovered that not only did the physicians as a group tend to "confirm" diagnoses that had already been suggested to them, but just like non-M.D.s tested in two previous studies, they tended to confirm the very options judged "least plausible" by a control group not given any previous suggestions.

"We shut our eyes to observations which do not agree with the conclusions we wish to reach. We close our ears to bits of history which seem out of place, or to noises coming down our stethoscope which are not included in the catalogue of official sounds we have been taught to recognize.... We see what we expect, and unconsciously we dismiss the anomalous."<sup>2</sup>—thus Dr. Richard Asher to the British Medical Society in 1959. In 1984, Dr. Kenneth Melmon, former chairman of the department of medicine at Stanford Medical School, had the same complaints and expressed them at length in the medical honor society journal.<sup>3</sup> With all this filtering going on, it's probably not surprising that diagnostics is a chancy business.

Since patients aren't considered to have much on the ball in the way of powers of observation or lucid description, there doesn't seem much point in giving them the opportunity to exercise whatever limited powers they possess. And indeed, the very structure of standard medical history-taking emphasizes physicians' control.

As taught in medical schools and practiced in a variety of medical settings, "proper" history-taking technique, according to researchers, consists in doctors initiating eighty to ninety percent of the questions. This technique includes frequent interruption of patients' statements—often within five to fifty seconds of the initial request for information; narrowing down of doctors' questions until "yes" or "no" becomes the only response left to the patient; and cessation of questioning after the patient has expressed an initial complaint, on the (usually false) assumption that the patient's first complaint is the chief complaint.

The result? Another well-recognized phenomenon known as "premature closure:" the tendency among doctors, from teaching hospitals to clinics to offices, to draw partially or wholly inaccurate diagnostic conclusions from too little evidence. It seems that standard diagnostic history-taking—not those fill-in-the-blank sheets distributed in doctors' waiting rooms or the quickie quiz administered by secretary-typists attached to the practice—actually hinders patient-doctor communication in the name of a false effectiveness and

spurious efficiency. That's why, over the past twenty years, a number of physicians have suggested sheer listening to the patient as a valid replacement for the standard Q&A medical "history."

Doctors fear that patients will ramble on for hours. But at one clinic surveyed, it took patients only a few more minutes to express their health concerns. And any good diagnostician knows that a really proper medical history should take at least an hour: the longer the patient talks, the more possibilities arise.

Observation—looking, listening, thinking—is the key to efficient, scientific, accurate medical diagnosis, as far as that's possible given the personal knowledge and talents of any one or several diagnosticians, and ever-shifting diagnostic categories as new discoveries alter medical perceptions.

But unfortunately, observation even by such a basic technique as the standard physical exam is being neglected in medical schools and, by extension, in medical practice. The public often hears that house officers—postgraduate M.D.s on staff as trainees in teaching hospitals—are carefully monitored by senior staff and attending physicians—doctors in charge of cases. These experienced professionals are supposed to supervise trainees in proper technique, critique their errors, and hone their skills until they emerge three or four years later—highly skilled, competent practitioners and specialists. In fact, surveys over the past thirty years show that house officers are rarely supervised; and what supervision occurs is haphazard, even wrong.

Following a group of interns and residents, a 1983 research team found that even when closely watched, the trainees erréd in examining some two-thirds of their patients: the bulk of errors were serious omissions in performing critical parts of the physical exam, with resulting major deficiencies in diagnosis and treatment of cases. (And since another widely discussed study found that nearly forty percent of 815 consecutive patients on a general medical ward in a prestigious medical center contracted iatrogenic illnesses—some fatal—as a result of diagnostic and treatment errors on the ward, this is serious indeed.)

In their summary of previous survey findings, the researchers cited substantial error rates in physical examination of patients "among experienced private practitioners and university affiliated attending physicians" and an "amazing error rate in critical physical findings in examinations performed by university affiliated attending physicians."<sup>4</sup>

In other words, the very instructors available to monitor and supervise would appear to need some supervision of their own. And what makes the problem more serious still is that pre-M.D. medical students don't get much clinical supervision either—so graduate trainees have little to fall back on in the way of knowledge and skills. An editorial in the *Journal of the American Medical*

*Association* laments the "surprising number" of medical students who "appear to have been awarded their M.D. degree without ever having been properly supervised in the complete clinical data-collecting process of even one patient!"<sup>5</sup> Frequently this includes failing to adequately show students the correct way to use a stethoscope or take a blood pressure reading.

But there's nothing new here, because a quarter century ago, in 1962, the *JAMA* published a report from the Columbia University College of Physicians and Surgeons decrying the "alarming decrease in emphasis on the training of the medical student to perform with excellence the average comprehensive physical examination."<sup>6</sup> It pointed out that not only were medical students rarely supervised while performing the physical exam, but that, once graduated, as trainees they remained essentially unmonitored, until their "deficiencies...hardened into firm habits." These habits were carried out into practice and back into the hospital wards as the former trainees now took *their* turn serving as attending instructors.

Small wonder, then, that a survey of cities around the U.S. showed that 70 to 85 percent of patients had been inadequately diagnosed and therefore inappropriately treated because doctors had failed to perform adequate physical exams or take a proper medical history. Among conditions frequently missed: many brain tumors and other cancers—scarcely rare conditions.

If anything underscores the tenuous basis on which medical education and the clinical practice that grows out of it operates, it is a recently published thirty-year study by a physician, a psychologist, and an educator on criteria used to admit students to medical school and to rank them as physicians once they are there. Starting with an examination of the

Medical College Admissions Test—the MCAT—as an alleged measure of future medical school prowess, the researchers went on to examine medical education itself.

They found, just as a Harvard Medical School instructor had discovered twenty years before, that not only did MCAT scores correlate poorly with actual medical school performance, but perhaps more startling, that *class rank in medical school failed to predict excellence in actual practice.* That's right: no more excusing incompetent M.D.s on the grounds that they graduated in the bottom half of their class.

Poor physicians and excellent physicians come equally from either half of their class. That's because, as the researchers found, excellent medical practice really revolves around three criteria: a general fund of knowledge to draw upon for rational problem solving (diagnosis); manual skills for clinical examination and surgical procedure; and dependability and commitment to patients (communication). These are not traits that can be quantified and scored on printout sheets. Nor can they always be taught in schools.

With all this gloom surrounding the current state of medical practice, what's the good news? The good news is that, startling as it may seem, patients themselves are often capable of recognizing and even correctly diagnosing their own serious health problems—and the medical literature admits it.

Tourette's syndrome is a neuroendocrine disorder that affects some 110,000 people in North America, usually begins in early adolescence, and afflicts three times as many males as females. According to Ruth D. Bruun, M.D., a "very large percentage of (Tourette's syndrome) patients are not diagnosed by their pediatricians or family physicians"—often because doctors don't take the time to listen to parents' descriptions of their child's symptoms.

"The majority of cases still being referred to this author are self-diagnosed using information disseminated by the Tourette Syndrome Association," writes Bruun in a recent issue of the *Journal of the American Academy of Child Psychiatry.*<sup>7</sup>

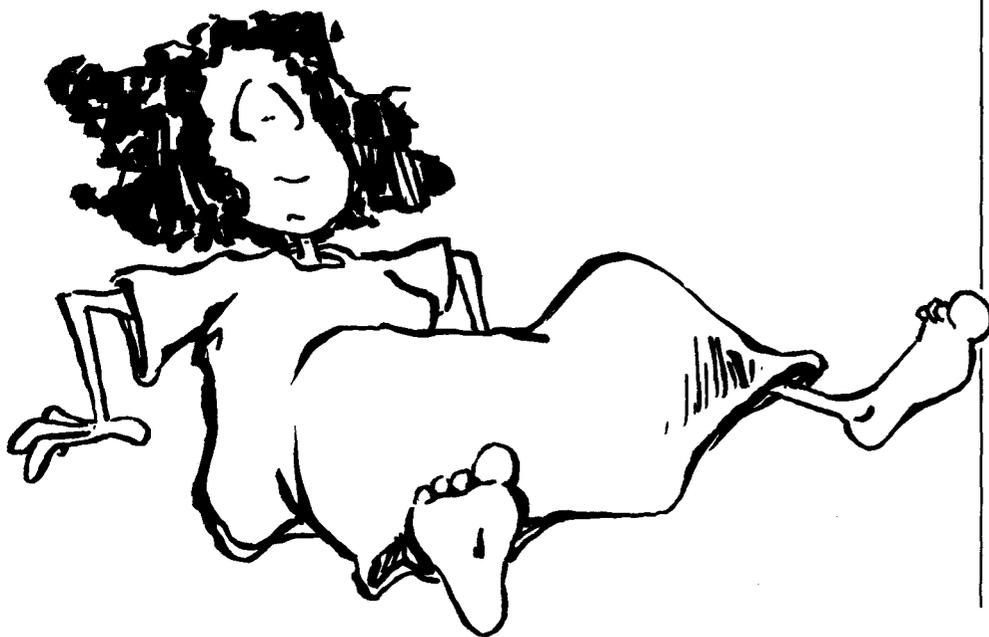
In a recent letter to the *Journal of the American Medical Association*, Dr. Peter Gott describes how an 82-year-old man traced his own episodes of faintness and tinnitus—notoriously difficult to track down—to a zip-up sweater too tight in the neck! In a recent study of 121 patients hospitalized for syncope (fainting spells) of unknown origin, fully 89.3 percent were eventually discharged without a definite diagnosis, despite \$298,000 worth of diagnostic tests.

Other cases include the former nurse who, after three years of making the medical rounds, was finally able to identify her own severe multiple sclerosis from review of her medical records; and the airline pilot's wife who, having researched her husband's symptoms and history, was soon able to correct physicians' initial diagnosis of leukemia to *Borrelia*, a group of bacterial diseases spread by ticks and lice. Although the *Borrelia* suggestion was at first rejected by physicians, the woman's finding was eventually confirmed by diagnostic tests and helped solve 47 other cases of undiagnosed *Borrelia*, two in doctors.

The case of a couple dying of lead poisoning classically illustrates how patients themselves (and those close to them) can solve complex medical problems—even save their own lives—by avoiding the diagnostic pitfalls too characteristic of regular medical practice, while following diagnostic procedures that should be a regular part of practice. Suffering from undiagnosed and misdiagnosed symptoms of the poisoning—uncharacteristic irritability, impatience and aggression, weight loss, insomnia and pains in the wrists and forearms—the husband watched while his wife went down with what was at first diagnosed as "flu," then as "acute intermittent porphyria"—a rare genetic enzyme disorder—and finally as a potentially fatal and rarer form of porphyria, allegedly characterized by constipation, overall pain, tingling in the extremities, dehydration, and anemia. A good guess, but it was the anemia, an anomaly in this porphyria, that should have alerted physicians to possible misdiagnosis.

The diagnosis having been reached, though, hindsight bias apparently prevailed, and it was left to the husband to pursue this crucial lead through the medical texts. It took just a few days for him to discover that anemia is typical of lead poisoning and that symptoms of lead poisoning are easily confused with porphyria. Again, the

CONTINUED ON PAGE 28



BY TIMOTHY J. BYERS

The discovery of a genetic marker linked to a form of manic depression in a large Amish family (as reported by J. Egeland et. al. in *Nature* 325:783, 1987) springs from revolutionary advances in recombinant DNA mapping technology. This disorder joins a rapidly growing list of hereditary diseases which may eventually be testable with genetic screening. But manic depression is distinct; unlike most hereditary disabilities, it has traditionally been considered a behavioral aberration, in the realm of psychiatry.

The finding is exciting because each step toward locating a gene involved in a disorder increases our understanding of that disorder and hints at the normal function of the gene. As we learn more about the illness, we may develop methods for early detection and therapies which attack the basic problems, instead of merely relieving the symptoms. There are dangers to genetic screening, however, which society must address.

In the past, studies of identical twins and adopted children have attempted to provide genetic explanations for human behaviors, such as intelligence or aggression. These studies continue to receive publicity, but their validity has been questioned by many psychologists and geneticists; their effect is generally to reinforce racist stereotypes and justify discrimination against particular groups of people.

The genetic mapping techniques which made the manic depression study possible allow one to examine linkages between genes and behavioral traits in a very convincing way. The rigorous standards imposed by the new techniques should sound the death knell for the type of dubious behavioral genetics studies we have seen in the past.

There is currently a great deal of interest in developing probes to be used in genetic screening for hereditary diseases. Uncertainties exist, however, in the use of markers which are only linked to the predisposing gene, rather than using probes for the gene itself. Heterogeneity—differences—in the DNA from one group of individuals to another diminishes the chances for a

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## HUMAN BEHAVIOR

### Prospects for Genetic Screening



John Klossner

correct diagnosis.

For example, in the same volume of *Nature* as the Egeland et al. report, other research groups present convincing evidence that the genetic markers linked to manic depression will not be of general use in screening because of this heterogeneity. There is even good evidence that other genes give rise to the same disorder, and it is likely that many cases of manic depression will not be due to genes at all. Further work must clear up these difficulties before the advances in research can be translated into useful medical tools.

A behavioral trait must be relatively well defined to be used in genetic linkage analysis. The form of manic depression which was studied for linkage fits this criterion, and the diagnosis is even more definitive among the Amish because of prohibitions against alcohol and drug use. These substances tend to mask or mimic the symptoms of manic depression in other populations.

Standards for the diagnosis of many other psychiatric disorders, such as schizophrenia or psychosis, are not as clear-cut and widely accepted. Likewise, criteria for qualities such as intelligence are often questionable. We must not, therefore, assume that the current study portends genetic explanations for a large number of other human behavioral characteristics.

A proportion of individuals who carry the predisposing gene for manic depression may never develop symptoms of the disorder. Closer examination of the interactions of genetics and environmental factors could give insights into why some susceptible individuals develop the illness and others do not. But using such a gene for prenatal screening presents a sticky dilemma.

Think of the decision facing parents who are told that their developing child carries a gene which predisposes him or her to a condition such as manic depression. They must consider that the disorder ranges in different individuals from easily treatable symptoms to periods of complete debilitation. There is even a good chance that the condition will not manifest itself at all.

It would be disturbing if societal pressure made a mother feel responsible for her child's disability should she choose not to take the test or not to abort after a positive result. Clearly, unbiased, competent counseling before and after the administration of any genetic tests is essential to make sure that their results and implications are fully understood.

The prospect of screening for psychiatric illness before the onset of symptoms raises other difficult social issues. When good tests are available, genetic disabilities may be considered preventable through comprehensive screening and abortion. We must not allow proponents of this position to shortchange care for the disabled and research into the treatment of disabilities. We know that striving toward a "perfect" world by eliminating those we consider unfit is hazardous at any level, and we need to be cautious about moving in the direction of this frightening scenario. (My intention here is to protect individual rights and the rights of the disabled; it should not be misconstrued as an argument against abortion.)

The basic research which gives rise to genetic screening technology is not intrinsically objectionable, but such research should not be carried out in a vacuum. Scientists and the public should be aware of, and be prepared to fight against, the potential abuses of this research. Otherwise, the tools that are generated could be used in genetic screening for the purposes of modern-day eugenics. A more subtle form of abuse could also arise at the hands of employers and insurers.

In today's society, insurance rates are based on risk, and persons with a disease such as diabetes or who test positive for antibodies against the AIDS virus are finding life insurance costly or difficult to obtain. Many people cannot afford health insurance. Of those who have it, the majority receive it as a benefit of their job and are not presently subjected to pre-employment health screening.

As the capability to screen for more genetic diseases increases, insurance companies will continue to add new tests as factors in the calculation of risk for individuals. Employers could also use this data against a job applicant in an attempt to cut down absenteeism and expenses which result from illness. If insurance and occupational screening is allowed to expand, an increasing number of people will find themselves uninsurable, and even unemployable, because of the genes with which they were born. The most natural solution to this untenable situation is to share the cost of illness through a national health insurance program whose aim is to help people rather than to make profits. It also follows that any screening must be voluntary, and the results held in strict confidence.

Considering that accidents, smoking,

inadequate nutrition, and substandard prenatal care give rise to many more disabilities than does our genetic makeup, we should not become inordinately preoccupied with hereditary diseases. As a question of priorities, one could argue that money which goes to genetic research might be better spent on programs to foster improved nutrition

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and prenatal care. But I would question whether these two issues should be competing for the same funds. Basic research is important to society. Genuine inequalities are revealed when one considers the national budget as a whole, with its current bias toward military spending and away from educational and social programs.

Unfortunately, for many people the term "genetic disease" has a morbid ring of finality. Those people should realize that such conditions can often be alleviated by therapy and that the quality of life for any disabled person is also heavily influenced by the biases, barriers, and isolation presented to them by our society. A popular truism says that "it takes all kinds" to make up a society. Perhaps we should take this to heart and broaden the range of what we consider "normal." In fact, some very creative individuals in history have been afflicted with manic depression.

At first glance, the finding that a single gene can promote the manic depression syndrome may seem to reinforce ideas of biological determinism. While there is certain to be a continuing flood of similar discoveries, it is equally certain that the manifestation of most human behavior is shaped by a complex interaction of genetic and environmental influences. As we consider these issues, we should remember that genes are just one, usually minor, component of this interaction.

## Consuming Fears

### The Politics of Product Risks

Edited by  
Harvey Sapolsky

Basic Books, 1986  
\$18.95 hardcover

REVIEWED BY STEPHANIE POLLACK

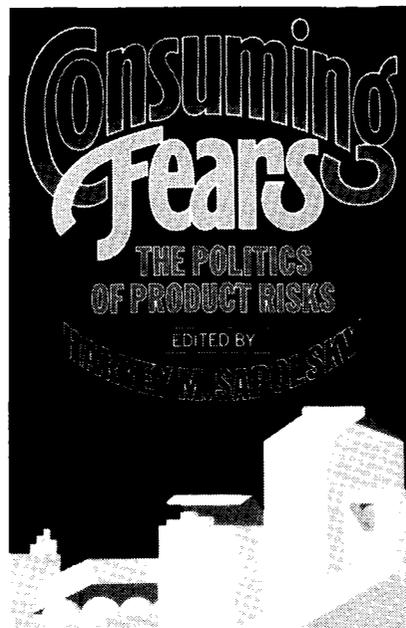
**P**ity the American consumer. Each is constantly deluged with conflicting signals from government agencies, scientists, public interest groups, and industry about the health risks of cigarettes, foods, and other consumables. As a result, consumers are easily confused and their perceptions of product hazards are distorted. Thus, Americans live in fear not just of crime and nuclear war, but of the things they consume.

So goes the thesis of *Consuming Fears*. Case studies of six phobia-inducing products are presented: cigarettes, dietary fat, salt, artificial sweeteners, tampons, and formaldehyde insulation. The case studies contain many interesting insights into the politics of product controversies, but the narrow lens through which editor Harvey Sapolsky, a political science professor at MIT, views them either misses or distorts their most interesting lessons.

*Consuming Fears* barely touches upon the question of whether the products analyzed in fact pose risks that consumers should be worrying about. The book ostensibly analyzes the origins of product fears, not their legitimacy. But the subtext seems to be that such fears are usually unjustified. For example, Sapolsky, a smoker, rejects evidence of a link between inhalation of secondary smoke and cancer as "incomplete and disputed."

So what is the origin of this public misunderstanding and unnecessary phobia? Generically speaking, organizations stir up these fears: governmental agencies, news media, public interest groups, businesses, and scientific organizations. The book's thesis is that "product risk controversies...are materially shaped

*Stephanie Pollack is an environmental lawyer and member of SftP's editorial committee.*



by the maintenance needs of organizations." Competition for attention and resources among these organizations "often leads to misrepresentation of product risks."

Having identified this problem, Sapolsky declines to propose a solution other than warning consumers to take what they hear in the marketplace of ideas with a grain of salt. Market competition "makes too great a contribution to our economy and polity to wish to tame organizational rivalry in favor of better risk management." The reader is vaguely told that there is guidance in the competitive din if one listens carefully, but few examples of sound advice appear in the case studies. Indeed, it seems as though every organization chronicled is a villain when it comes to distorting risks.

The important point is that they are all equally villainous. *Consuming Fears* refuses to make value judgments about whether any type of organization—government agency, public interest group, or industry—ever produces trustworthy information about product risks. All intermediary organizations are useful—or useless—to consumers. The only difference among organizations is their "maintenance needs:" businesses need profits, government agencies need to please their constituencies, scientists need tenure and research funds, public interest groups need attention, and the news media need sexy stories.

While this equal treatment may produce a comforting symmetry and sense of objectivity, it overlooks important differences in motive, political power, and public credibility among

different organizations. Despite post-Watergate skepticism, for example, governmental pronouncements carry a lot of weight—when agencies decide to act. That is why commodity producers fought so hard to alter the language in the *Dietary Goals* document produced by a Senate Select Committee. But as Janet Levine concludes after examining the diet/heart disease controversy, "Without consistent government activity the accuracy of public information on health prevention issues becomes dependent upon the serendipitous interaction of scientific findings and private marketing needs."

As the case studies reveal, however, scientific findings are more than serendipitously related to private marketing needs. It is no surprise that Linda C. Cummings, who wrote the section on artificial sweeteners, finds that the diet food industry is the principal sponsor of studies concluding that artificial sweeteners cannot be shown definitively to have any ill effects on humans.

Industry also influences product risk debates through advertising. Producers of low-fat and low-salt foods played a crucial role in developing public awareness of dietary risks as a means of developing markets for new products. Sapolsky concludes, "It is these advertisements, rather than any specific news report about a scientific study or an agency inquiry, that probably provides the consumer with the health information that affects buying decisions." Despite the picture painted in *Consuming Fears* of a level playing field among organizations, it is clear that private industry—through research sponsorship and advertising—has a substantial competitive advantage, at least when government agencies decline to play.

And government agencies are wary of making decisions in the face of scientific uncertainty. As Linda C. Cummings' chapter on artificial sweeteners notes, "With an indeterminate scientific base for regulation, the role of nonscientific factors has assumed decisive importance in policymaking." "Nonscientific factors" is a polite euphemism for ideology.

Sanford L. Weiner's formaldehyde case study illustrates how scientific uncertainty was used as an excuse by agencies engaged in an ideological battle over the proper way to regulate suspected carcinogens. With formaldehyde and many other carcinogens, "scientific uncertainty" is little more than an excuse for government agencies to

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## Micro-cosmos

by Lynn Margulis  
and Dorion Sagan

Summit Books, 1986

REVIEWED BY MARY A. HOOD

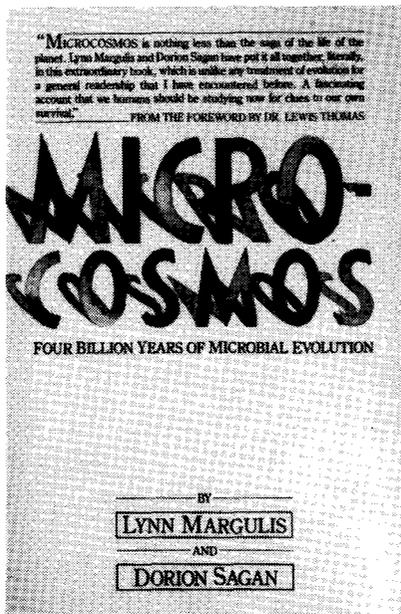
Is it possible that our bodies, composed of  $10^{16}$  animal cells, contain  $10^{17}$  bacterial cells? Are we more bacterial than human? Or are we and all other creatures part of a larger organism, that organism being the earth? These are some of the questions we are asked to contemplate in *Microcosmos*, by Lynn Margulis, a microbiologist, and Dorion Sagan, a science writer.

Following a foreword by Lewis Thomas, the authors describe our "humble beginnings." "We are part of an intricate network that comes from the original bacterial takeover of the earth." The Age of Bacteria began nearly 3.9 billion years ago with the evolution of simple microbes, and these bacteria have been on earth over five times longer than any other life form. Before the advent of bacterial life, we, the readers, are asked by the authors to envision the earth slowly cooling and to imagine life beginning as complex organic molecules which aggregate and organize themselves into larger, more complicated forms. These molecules eventually replicate and evolve into bacteria and cyanobacteria, which produce oxygen as a waste product. As they proliferate, they alter the earth's atmosphere.

The authors suggest that higher forms of life developed as a symbiotic process, wherein simple cells fuse together to form more complex ones. For example, the eucaryotic or nucleated cell evolved from the merger of simpler cyanobacteria and bacteria-like ancestors. Higher aquatic plants and animals also evolved from the merger of microorganisms, and even terrestrial plants developed from algae and fungi-like ancestors, while terrestrial animals began as communities of eucaryotic cells.

We follow the evolutionary scheme until we come to the human, but the authors give us a very different view than that of people as "killer apes." Just as

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"The world shimmers, a pointillist's landscape made of tiny living beings. Giant redwoods and whales, mosquitoes and mushrooms are intricate symbiotic networks, modular manifestations of the nucleated cell."

Copernicus revolutionized science by destroying the belief that the earth was the center of the universe, Margulis and Sagan give us a less egocentric view of humans and their role in evolution. They dismiss the myth of the caveman as one "who stumbles out of his primeval cave with club in hand" and present a more modest and rather matriarchal view of our ancestors: "We are probable descendants of...tree climbing cowards...and from mothers such as Lucy."

The final chapter concludes with the idea that humans may not be the culmination of life on earth and that change is inevitable in the future. Margulis and Sagan lead us into this

imaginary future with such fanciful creatures as bacterial robots, the merger of microbe and machine.

The last chapter also completes the evolutionary, ecological circle by discussing the Gaia theory. First proposed by J.E. Lovelock, this hypothesis claims that "Mother Earth," known to the Greeks as Gaia, can be visualized as a single organism. Just as we humans are made of individual cells, the earth is also made of individual parts. The Gaia theory suggests that we humans are part of the earth's body much like a tissue, like bone or blood cells, is a part of our bodies. But the earth can live without us, and probably live longer, while we cannot survive without our blood cells and other component parts.

Why is *Microcosmos* worth reading? First, the book is beautifully written in language that is both poetic and accessible. "The world shimmers, a pointillist's landscape made of tiny living beings. Giant redwoods and whales, mosquitoes and mushrooms are intricate symbiotic networks, modular manifestations of the nucleated cell," they write. "Life on earth answers threats, injuries, and losses with innovations, growth, and reproduction."

Second, there are numerous interesting observations and insights into the microbial world, the biological world, and the world of science in general. Examples of interesting microbial facts include the observation that only five percent of all plants on earth lack persistent fungal symbionts, and that fungi produce defensive chemicals ranging from penicillin to LSD. The complexity of biological relationships is expressed in such imagery as: "An organelle inside an amoeba within the intestinal tract of a mammal in the forest on this planet lives in a world within many worlds. Each provides its own frame of reference and its own reality."

Discussing the nature of science in the 19th century, the authors illustrate how the manipulation of science and observations were used to validate religion. "Fossils, indeed all of nature," they write, "were interpreted in a biblical context and studied with an eye to the verification of the word of God."

By far the most important reason why *Microcosmos* is worth reading is that it presents a unique and rather flexible approach to the evolution of life. At a time when the proponents of reductionistic, mechanistic biology are often given the most credibility by the intellectual and scientific community, it is a joy to

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## The Politics of AIDS

by Nancy Krieger and Rose Appleman

Frontline Pamphlets, P.O. Box 2729, Oakland, CA 94602, 1986, \$4.00

**A**t 60 pages, this pamphlet hardly tells us everything there is to know about AIDS from a political standpoint, but it's a good introduction. The authors have summed up Reagan Administration stonewalling, right-wing hysteria, and scientific bickering in a concise, readable style.

Krieger (whose article on the epidemiology of AIDS in Africa appeared in the January/February 1987 issue of *SftP*) and Appleman cite example after example to prove the point that "Only political action will secure an appropriate, scientific and humane response to this devastating disease, because politics permeates every aspect of prevention, research and treatment."

*The Politics of AIDS* begins by briefly defining the disease and some patterns of transmission worldwide. Apart from the Center for Disease Control's initial labeling of Haitians as a "high-risk group," the U.S. media have given virtually no attention to AIDS in other countries (despite World Health Organization estimates of 10 million carriers). Whereas first-world people are getting AIDS and AIDS-related diseases through sexual transmission and illicit use of intravenous drugs, people in the Third World are getting it from medical facilities too poor to throw hypodermic needles away after one use, as well as from exposure to compounding factors of poor nutrition and high rates of other untreated venereal diseases which may make the body more vulnerable to the AIDS virus. These general health factors are mirrored in our own minority population, as the pamphlet quotes from a government report claiming that 350 children in the U.S. were diagnosed as having AIDS as of September 1986, over 80 percent of whom were minorities.

A summary of current research funding levels contrasts Reagan's suggested \$85 million AIDS research budget with his \$1.7 billion "war on drugs" publicity stunt. He's not alone in his antipathy, though. The military is AIDS-testing recruits and turning down anyone who admits to being gay or having used IV drugs. And then there's Houston's Republican mayoral candidate who wants to "shoot the queers."

What's a better solution? The authors suggest a broad people's movement

which will demand government attention to the problem in the relatively short term. In the longer term, they conclude, AIDS is a systemic problem whose solution depends upon fighting urban decay, racism and poverty, and stopping the "runaway military budget and imperial aspirations."

—Ellen Weinstock

## Peace

### A Dream Unfolding

edited by Penney Kome and Patrick Crean

Sierra Club Books, San Francisco, 1986, \$35 hardcover, \$18.95 paperback

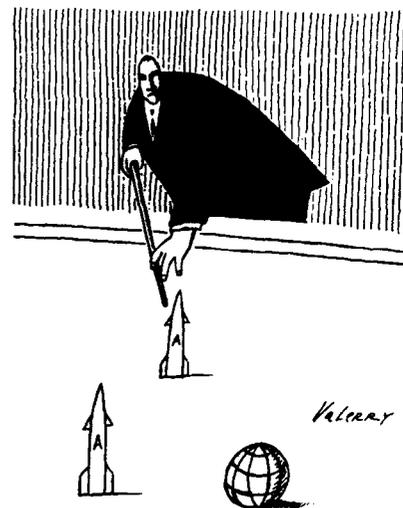
**S**ay it's 1997. You want to explain to some young children about how the peace movement suddenly swelled and just as suddenly fizzled in the early 1980s. *Peace: A Dream Unfolding* is exactly the kind of book you'd want to show them. The photographs are beautiful, the text well laid-out. Many of those quoted in it are authoritative, but there are just enough unknowns sprinkled in to give it a populist feel. The book would also be perfect to show a teenager learning how to think critically, if you wanted a text to show that what looks indisputably true is often not so. As for you, presumably an adult in 1987, this book is a pretty addition to your coffee table.

Kome and Crean tell us that the civil and women's rights material included is there "to show that human nature refuses to accept (for very long) such appalling cruelty." But this is a very loose thesis for a Rocky Road sprinkling of essays by conscientious objectors, blacks marching for their rights, and astronauts' impressions of our "big blue marble." In going back to Lysistrata and biblical doves to show early developments of peaceful themes, no theory is offered as to why, if humans obviously want peace so badly, they haven't found it yet.

The editors offer no reason why the Western public has allowed the military to so entrench itself. Only a grain of orientation is offered, and that is in the introduction by 1985 Nobel Peace prizewinning physicians Bernard Lown and Evgeni Chazov of International Physicians for the Prevention of Nuclear War: "Technology was intended to serve human interest, to enlarge the domain of freedom against life's compelling necessities. It is clear that our technology is beginning to operate against our will and threaten our extinction." This theme, however, is never developed.

It's sad that this beautiful, well-intentioned book never becomes the human testament it wants to be. In sticking to simplistic explanations, it is more likely to cause righteous sorrow than logical thought.

—Ellen Weinstock



## Toward A Livable World

### Leo Szilard and the Crusade for Nuclear Arms Control

edited by Helen S. Hawkins, G. Allen Greb, and Gertrud Weiss Szilard

MIT Press, Cambridge, MA 02139, 1987, hardcover \$50

**A**lthough some aspects of Leo Szilard's life make him sound like the mad scientist from Central Casting, the compassionate, sane ideas documented in this collection show him to have been well in touch with political reality.

Szilard first conceived of chain reaction, crucial to development of the A-bomb, while crossing a London street in 1933. In July 1939, the Hungarian Jewish refugee was afraid of Hitler being the first to develop atomic weaponry and joined Einstein in asking President Roosevelt to begin a full-scale research project. When his efforts to prevent the bomb from being dropped on Japan failed, Szilard began a nineteen-year peacemaking mission. Until his death, he spoke and wrote about myriad new proposals which seemed to occur to him effortlessly. Among his achievements were scientific conferences, the founding of Council for a Livable World, and the idea of the US/Soviet hotline agreement.

Reading this peacemaking work takes one's breath away. Szilard seemed to know years before anyone else of the arms race which would take place, and he

immediately set to inventing schemes to prevent it. His support of the Pugwash Conferences is mundane compared to his gift to Khrushchev: a Schick Injecto Razor. It is not mentioned what inspired the scientist to bestow that particular bit of American technology on the Soviet leader, but live with his wife, Gertrud.

This volume is the third Szilard collection. *Toward a Livable World* might just as easily be titled *Genius at Play*. It is full of bits of intelligence and logic of a keenness that most of us would be lucky to display once or twice.

—Ellen Weinstock

## By the Sword We Seek Peace

### Military Spending and the State Government in Massachusetts

by Robert Leavitt, 3 Durham St. #1, Boston, MA 02115, 1986, \$15

## Diversification Planning Towards Stability in an R&D Economy

by the Cambridge Peace Commission, 57 Inman St., Cambridge, MA 02139, 1986

**E**conomic conversion is an oft-mentioned principle of the progressive movement, and an important one. As our economic life becomes more tied to the production of arms, other human capacities atrophy. The common argument for military "priming" of the economy cites jobs, technological spin-offs, and the need to protect the imperial dimensions of our economy. The actual effect of this is more complex. Military spending certainly provides employment, but it also drains expertise away from other sectors, which can make a community, or a nation, more economically rigid and unstable.

Robert Leavitt has examined in detail the growth of military spending and its relation to the Massachusetts economy. He shows how high-tech defense contractors have prospered in a state whose senators, congressmen, and governor have largely opposed the Reagan arms buildup. He notes the lively, wide-ranging progressive movement in the state, whose members organize around both national issues such as the Freeze and local issues like Nuclear Free Zones. But through all of this activity, the state remains committed to the growth of the business community. In Reagan's America, where sixty percent of all federal research funding goes to the military, this means building weapons.

Leavitt has much valuable information on how effectively Pentagon money functions in the economy. His analysis of the reluctance of politicians to really challenge the prevailing order is sobering. He shows the conversion movement itself to be a response to the disruption and inflexibility of industries dependent on the Pentagon. The state's dying shipbuilding industry, which converters have been helpless to arrest or transform, may foreshadow the fate of other now-robust sectors.

Such concerns moved the city government of Cambridge, Massachusetts to examine how their city is affected by military spending. The report of the Cambridge Peace Commission is startling. In 1984, over \$400 million in Department of Defense contracts went to Cambridge firms and universities. The impact of this money on a city of 100,000 is enormous. The last comparable period of military income for the city was during the Vietnam War. And that era had its moral turn as well; in the early 1970s, as the Pentagon budget shrank, thousands of scientists, engineers, and technicians were laid off. Anyone might have guessed that the well would run dry and that the war, won or lost, would end. But companies did not plan for that eventuality.

*Diversification Planning* is a useful outline for preventing a repeat performance of military boom and bust by converting now, before the drought. Reagan has achieved his military buildup without a major war, so that existing weapons are used and new ones built, let the conservatives' paranoia fuel another quantum leap in the arms race, or cut back on military dollars.

The Cambridge Peace Commission is counting on this last scenario to lend authority to its call for conversion, wisely termed "diversification" throughout the report. Several top Department of Defense contractors are examined, and some are already weaning themselves from the Pentagon. But others, including the largest, Draper Labs (with \$288 million from the government in 1984), are so caught up in the death economy that they can conceive of no other plan or purpose for their resources.

These two documents provide the statistics, history, and reasoning for a concerted effort to introduce social responsibility into community development. They are useful tools for activists, city officials, unions, and others attempting to practice economic democracy wherever they live.

—Gary Keenan

## NEW TECHNOLOGIES

CONTINUED FROM PAGE 8

independent assessment, and guard against exploitation and abuse.

Since the Swedish conference on the new reproductive technologies in 1985, there have been many developments. In September 1986, the American Society for Fertility and its expert panel issued new guidelines for reproductive technologies, discussing some of the same concerns raised in Sweden. Using the embryo freezing technique, the second baby was born in the U.S. in October 1986. Fetal surgery, genetic screening, and gene therapy are beginning to pit women's rights against fetal rights.

There are now more than twenty U.S. surrogacy businesses in operation, and over 500 babies have been born to women hired by couples and men who want "their own" children. More surrogate mothers are deciding to keep their babies after birth. The March 1987 decision to grant custody of surrogate "Baby M" to the sperm donor and father, William Stern, rather than the mother, Mary Beth Whitehead, has fired the debate about ethics and the rights of mothers, fathers, and children born from surrogacy arrangements. (See Rita Arditti's article in the May/June 1987 issue, "Surrogate Mothering Exploits Women.")

Today, there are sixteen reproductive technologies offering alternatives to traditional parenthood. With each major technological advance comes the potential for abuse. Therefore, ongoing evaluation and monitoring of these technologies must continue to prevent abuse.



## NOTES

1. Janice Raymond, "A History of FINNRET," Feminist International Network of Resistance to Reproductive and Genetic Engineering (FINRRAGE), 1985, page 3.

2. Gena Corea, "The New Reproductive Technologies: An Overview," FINRRAGE, 1985, page 6.

3. Ibid.

4. Maria Miles, "Why Do We Need All This? A Call Against Genetic Engineering and Reproductive Technology," *Women's Studies International Forum*, Vol. 8, No. 6, 1984, page 1.

5. Judith Dwyer, "IVF and AID Programs in South Australia," 1985, page 5.

6. Lene Koch, "Report on Reproductive Technologies in Denmark," unpublished paper, 1985, page 10.

7. Pat Spallone, "The Politics of Reproductive Technology: A Study in Repression," unpublished paper, 1985, page 2.

8. S. Jansen, "Reproductive Technologies in Germany," unpublished paper, 1985.

9. Ibid.

10. Sultana Kamal, "Seizure of Reproductive Rights: Population Control and the Emergence of the New Reproductive Technologies in the West," unpublished paper, 1985, page 2.

## DILEMMAS

CONTINUED FROM PAGE 21

layman's suggestion was at first rejected by medical experts—who insisted lead poisoning should derive from occupational exposure. (But how many of the wife's relatives suffered from porphyria?) Only the husband's persistence finally led doctors to perform the necessary simple blood tests—and to discover near-fatal amounts of lead in their patients' bodies. Further research by the husband uncovered the source of the poisoning: inadequately fired imported ceramic dinnerware.

Medical diagnosis and treatment has been presented to the public as a mysterious process over which professionals alone can preside. In fact, it is as often as not a matter of semantics, perseverance, and chance. Since it is patients and their families who suffer when medical care is inadequate, it is patients and their families who are most likely to persevere, looking for answers and relief.

Such perseverance is often scorned and vilified by professionals anxious for their territorial prerogatives. It should be admired and rewarded, just as we admire and reward perseverance in other worthy endeavors. Only in this way can real partnership between patients and practitioners emerge—a partnership based on mutual knowledge, mutual trust, and mutual respect.



### NOTES

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## CONSUMING FEARS

CONTINUED FROM PAGE 24

abdicate their regulatory responsibilities. Langdon Winner, among many others, has noted that the strict standards of uncertainty applied to scientific research may have the effect of making dangerous practices and products "innocent until proven guilty." The irony of this approach, Winner notes, is that while the creation of an environmental hazard or the introduction of a dangerous product may be done in the most reckless fashion, "scientific studies on the consequences must be done with scrupulous care."

So pity the American consumer. Because markets are sacred, responsibility for assessing risks rests on their shoulders. And consumers must glean

information about product hazards from research done by industry-funded scientists or advertising designed to sell these products or create new markets. Government agencies cannot be relied upon to provide any information until scientific uncertainties are resolved.

Perhaps the authors of *Consuming Fears* are right that consumers spend too much time worrying about potential health hazards from individual products. More appropriately, they might focus on the consumer product marketing and regulatory system as a whole—the marketplace of intermediary organizations that permits and even encourages the introduction and marketing of hazardous products. 

## MICROCOSMOS

CONTINUED FROM PAGE 25

read the expansive ideas of an ecologist. But how do the authors' views differ from reductionistic and mechanistic biological thinking?

Reductionism in biology is a type of scientific thinking which reduces all life to the level of the genes. All organisms are seen by the reductionist as a set of genes, and the primary act of those genes is self-preservation. This kind of thinking leads to a type of biological determinism which implies that organisms are nothing more than their genes, and that an organism can never by anything more than what its genes are.

For example, if a man has a set of genes which codes for aggressive behavior, the man will commit aggressive acts—perhaps even murder. There is no escaping one's genes! This kind of logic has been criticized by some scientists because it can be used to justify all sorts of human injustices.

Along with reductionistic biology, another explanation of evolution has developed which is a misinterpretation of Darwin's "survival of the fittest." In this type of thinking, the fittest is defined as the most competitive. Desmond Morris and other pop ethnologists have made this idea popular by proposing that humans evolved because they were the most successful competitors.

Mechanistic biology, another approach, proposes that all organisms, including humans, are like machines. If the machine breaks, one simply replaces the broken parts. Biologists who combine mechanistic approaches with reductionism often think of "man as the gene machine."

All these elements of biological

thought—reductionism, determinism, competition, and mechanism—have limitations and do not completely explain the diversity of life forms, either in structure, function, or behavior. Stephen Jay Gould describes the nature of scientific hypotheses by saying, "We can never be completely sure that a hypothesis is right, though we may be able to show with confidence that it is wrong. The best scientific hypotheses are also generous and expansive: they suggest extensions and implications that enlighten related and even far distant subjections."

This is exactly what the authors of *Microcosmos* do. They give us a generous, expansive view of life and how organisms may have evolved. They suggest that life evolved on earth as a result of cooperative interactions among organisms. The possibility that newly evolved organisms are a merger of two or more older ones is an extension of the theory that all nature is interactive and dependent. Margulis and Sagan give us a view of the world and its evolution based on relationships—relationships that are most often mutualistic or symbiotic, sometimes parasitic, but always connected. We discover that nearly all organisms today are part of a team, not only the familiar lichens, but also sea squirts, termites, and even humans.

*Microcosmos* offers a gentle alternative for viewing the world, one based on cohabitation and cooperation. For the reader interested in where life began, where humans came from, and where we and the rest of life are going, *Microcosmos* is recommended as thought-provoking reading. 



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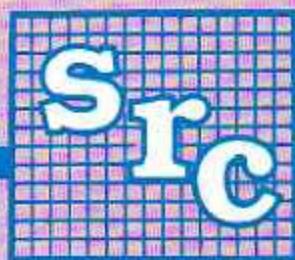
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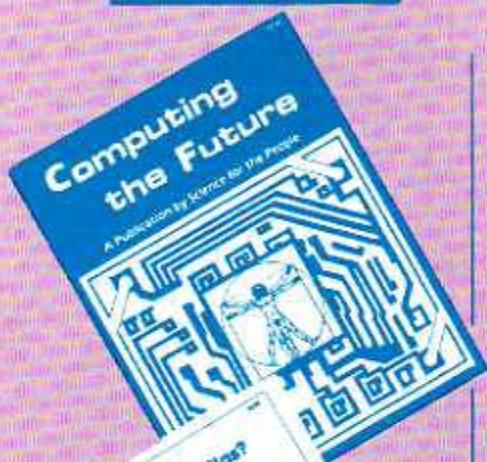
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