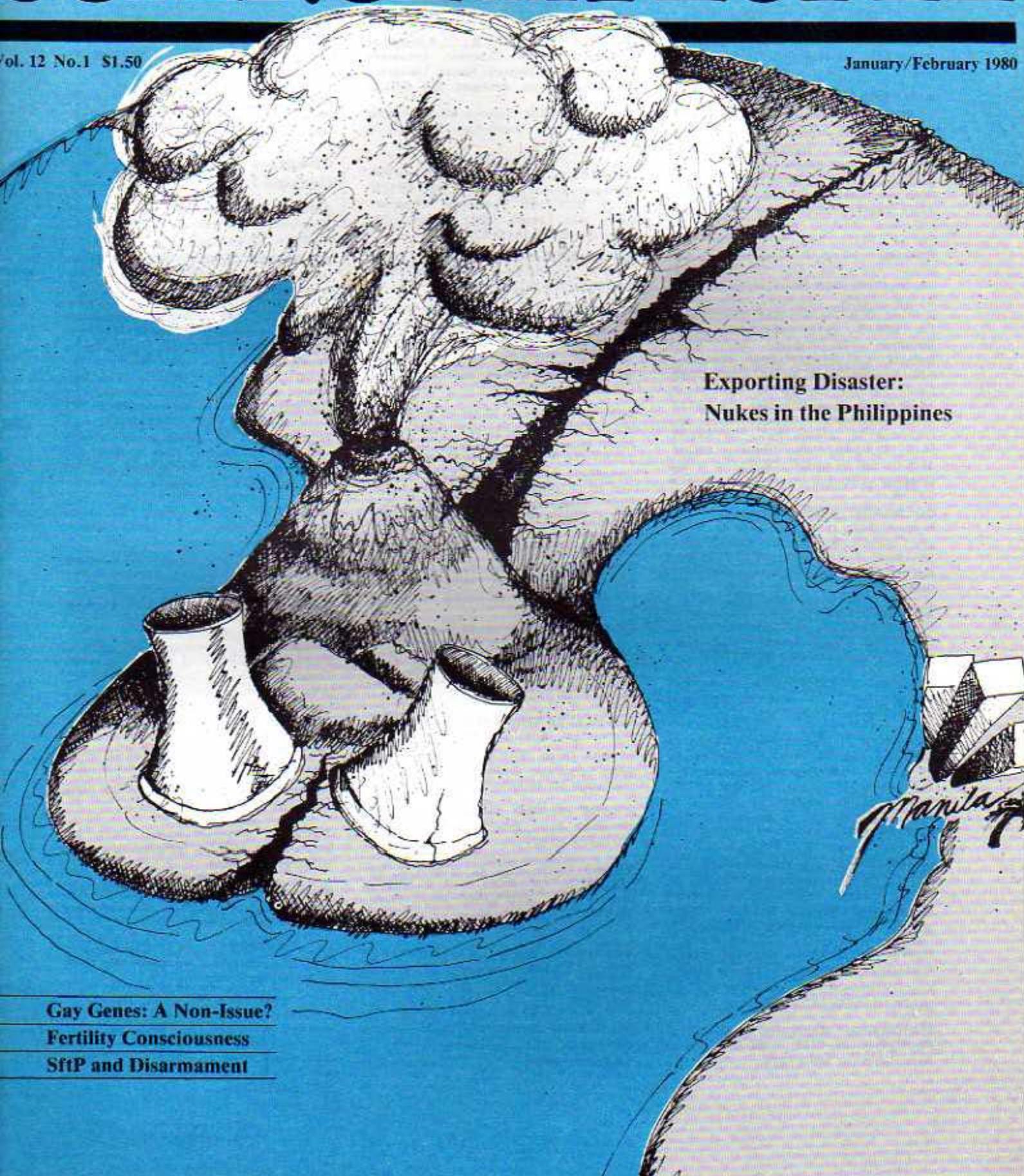


SCIENCE FOR THE PEOPLE

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**Exporting Disaster:
Nukes in the Philippines**

Gay Genes: A Non-Issue?
Fertility Consciousness
SftP and Disarmament

Chapters and Contacts

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

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about this issue

The first three articles in this issue all examine the different ways political ideologies affect personal experience. Each article demonstrates how scientific justifications or systems of belief can influence the way we perceive and value ourselves.

We are pleased to present an important piece of "people's science" from the Fertility Consciousness/Woman Controlled Natural Birth Control Group of the Women's Community Health Center in Cambridge, Mass. In addition to pointing out one way in which women can begin to understand and regain control of their own bodies, this article also makes the crucial point that such information is never value-free. By examining the Natural Birth Control program of the Catholic Church, this article demonstrates that the same techniques of birth control can take on quite different meanings depending on the context within which they are taught.

As part of our continuing critique of biological determinism, we offer Doug Futuyama's cogent treatment of the analysis of homosexuality in the sociobiological literature. Although many gay individuals have hailed sociobiology's suggestion that homosexuality is genetically based and therefore simply an alternative mode of normal behavior, Futuyama suggests that gays must be wary of this apparently "liberal" attitude and emphasizes the essentially non-scientific nature of sociobiology as well as pointing out its potentially repressive character toward homosexuality. Stressing the ultimate irrelevance of sociobiology, Futuyama comments, "To concentrate on discerning the causes of homosexuality is, first, implicitly to judge it a personal or social problem and to divert attention from the more pressing, liberating questions: What cure is there for society's homophobic oppressive attitudes? And how can we help people whose judgement of their own worth has been warped by repressive societal values?"

From Eileen Van Tassel's experience of the sexism embodied in many of our current college biology textbooks, we are reminded again of one of the many barriers to women's self-valuation. This article provides us with examples of how pervasive sexist attitudes are and

how they oppress both men and women. In addition, we discover to our "amazement" that certain common "truths" are not so true after all. For instance, how many of you out there believe that men and women have recognizably different skeletal hip structures? Don't be shy, raise your hands if you think it's true. OK, all you people with your hands up, turn to page 16 and start reading.

The two current opinions on disarmament in this issue express divergent views from the Disarmament/Energy Group of Boston SftP. The editorial committee would like to express its reservations about these two articles.

The argument in "Why Disarmament Now?" rests on the assumption that the Soviet Union is an imperialist country in the same way as were the dominant European countries before World War I. Based on this premise, war between the leading imperialist powers, i.e., the United States and the Soviet Union, is inevitable. However, this central premise is not sufficiently developed in the article to be convincing.

"The Arms Race" cites several facts about the current phase of the investment in armaments by the U.S. and the Soviet Union. However, it does not really address the question: "Why is the disarmament movement more likely to succeed now than in the 1950's?" The article does not address the political and economic forces that foster the "arms race," nor does it explain why SftP should focus its efforts on the disarmament issue now.

Related to the disarmament issue is the problem of the impending spread of nuclear power plants to Third World countries. The lack of concern for human safety on the part of a repressive, dictatorial regime (as in the Philippines) is not surprising. But in reading E. San Juan Jr.'s article, we see the active role that the U.S. government and U.S. corporations have played in "encouraging" reactor proliferation. In addition to safety issues, there are many other economic and technical reasons why nuclear power makes even less sense in developing countries than it does here. □

letters

Dear SftP,

"Political Gynecology" (*SftP*, October 1979) painted a fascinating picture of the political evolution of a group of dedicated feminist health care activists. Their political acuity is witnessed by the questions they raised. These are the central questions that any group trying to evolve a consistent radical approach to the present system must deal with: reform vs. revolution, the relation of short term change to long term radical change, setting up one's own systems vs. fighting for control of existing systems, etc.

Unfortunately, since they appear to be strictly inward looking for answers to any political questions that arise (as opposed to their practical work, which is directed outward), they overlooked at least 140 years of experiences from a wide variety of groups grappling with just those questions. Instead of learning from those pioneers and avoiding the many traps that await the well intentioned but unwary, they fell into what's probably best called sectarianism. In the name of ideological purity they withdrew from the struggle, with the usual cover of demands they knew wouldn't be met. From the perspective of real admiration for the work these sisters have devoted much of their lives to, we want to sharply criticize the ideas underlying the third protocol, state why we think it was neither politically reasonable nor gynecologically sound, and why it was sectarian and elitist. We hope these criticisms will be talked over in their group.

Are we for or against reforms? Are we afraid that reforms will lead to cooptation? Answer: that's not the way to politically ask the question, it's a trap. If you argue for all reforms you end up backing things like Khomeini's nationalizations, which were done specifically to smash the self-organizing that was going on in the factories in Iran. If you argue against reforms in principle, you're putting forward the idea that the more oppressed the people are, the more readily they will revolt. Thousands of years of history show this

to be false. Also, this argument leads you at least secretly to hope that things will get worse for the masses. A gut feeling, known as class solidarity, should tell any real radicals that this is plain stupid. The letter by Mike T. in the same issue indicates the way to approach any such political questions. The correct question is: does a given reform help mobilize people, raise their consciousness and combativity, etc.?

So we'll apply the correct question to the issue at hand. Have improved medical care for women, and women's perception of quality medical care as their right, dampened the combativity of women, or of the working class as a whole? What about the demand to be treated with respect by doctors? Or the now widely held view that abortion is a woman's right? To ask the question and to look even briefly at the world we live in is to answer it. The first and second protocols were part of this progressive struggle for better women's health care, progressive in a revolutionary and not just reformist sense. The third protocol, as the author stated, was set up in such a way that they knew it would be rejected and they'd be removed from that part of the struggle. It's like going into a factory with a full blown program for socialism and demanding that the union bureaucracy and the rank and file subscribe to it completely or you'll not work with them. It's sectarian.

How much were the medical students, or any other medical personnel for that matter, involved in deciding how they'd be instructed? How much effort went into trying to draw them or broader forces such as other women's groups into the struggle against the present medical system? The key to effecting change in the real world is creating a power base. The more fundamental the change envisioned, the larger the base will need to be. But in any field one must at least win over sections of the technicians, here doctors and medical personnel. That means breaking them away from the bourgeois picture of medicine they now hold. It is elitist for a knowledgeable few, cut off from the bulk of the workers, to feel they can

create a program for the field; and to think they can effect it without building broad support is a type of vanguardism.

There is a medical point to bring up. We subscribe to the idea of medical self-help. That's what brushing your teeth is. But it's not opposed to going to the dentist. Certain things s/he can do better, because s/he has the skills and the equipment, even if s/he does have bad attitudes. Incidentally, one sees the same problem in any service industry, like auto repair, not just in health care; it's part of the problem of service being a commodity in this society. (Interested people should definitely look into the Cuban health system, with its building up of self-help and local clinics, as well as improving medical centers.) Self-breast examinations are of paramount importance, but they fit in with other levels of care, such as tissue biopsy to determine malignancy or benignity, and appropriate treatment. Self-pelvic examinations serve two purposes. First, there is the very important part it plays getting women familiar and comfortable with their own bodies. Second, it can detect very large and far advanced lesions. I have done pelvic self-examinations myself (E.B.), and we feel very strongly that they can never replace careful pelvic examinations by a skilled health worker with the appropriate equipment for pap smear, cultures, etc. So if people come to view self-help as a substitute for complete examinations, a medically dangerous situation arises. It's bad gynecology.

Finally we want to say a few words on the issue of male gynecologists. As pointed out above, fighting for quality women's health care, coupled with the rest of the fight for women's liberation, has a revolutionary dynamic. Women and men can relate to this struggle, just as white men as well as minorities and women have come to understand preferential hiring for oppressed groups. Even the labor bureaucracy has been forced by the ranks, which are predominantly white male in many fields, to take a progressive stand on affirmative action. Can you mobilize anybody — patients, female medical students, anybody — to fight for excluding men from gynecology? Again it's a schema imposed in an elitist way, due to the isolation of the pelvic teaching group from extensive contact with the class whose progressive interests they are out to champion. Our experience indicates that a majority of

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Reclaiming Reproductive Control

A Feminist Approach to Fertility Consciousness

by Susan Bell, Paula Garbarino, Jeanne Hubbich, Adrienne Ingrum,
Lyn Koehline, and Jill Wolhandler

Fertility Consciousness, the recognition of times in a woman's menstrual cycle when she is potentially fertile, is something that all women can learn and is every woman's right. "Common knowledge" about fertility has been lost through the isolation of women from each other and the medicalization of women's reproductive functions. We are a group of feminists working in a program sponsored by the Women's Community Health Center in Cambridge, Massachusetts, attempting to make this information available through self-help groups.

We began three years ago as a small research group on natural birth control, observing our own bodies and searching out and studying both scientific and practical (lay) literature. By September 1977 we were ready to share with others what we had learned about menstrual cycles, body changes, indicators of fertility, and effective natural birth control. Since then we have facilitated Fertility Consciousness/Woman Controlled Natural Birth Control self-help groups — teaching, learning from, and sharing experiences with women. In our own self-help group of facilitators and through work with others we have become increasingly aware of the political implications of this information.

In this article we will critically assess the different methods of natural birth control, clarify what we mean by Fertility Consciousness and Woman Controlled Natural Birth Control, and discuss some of the political issues we have raised in our group. We will outline ways in which women might go about assessing Natural Birth Control classes. (See box.)

This article was written by Susan Bell, Paula Garbarino, Jeanne Hubbich, Adrienne Ingrum, Lyn Koehline, and Jill Wolhandler for the Fertility Consciousness Group of the Cambridge Women's Community Health Center. Portions of the article were presented as part of a talk at the EIRTAW (Ethical Issues in Human Reproductive Technology: Analysis by Women) Workshop at Hampshire College, Amherst, MA in June 1979.

There are a number of techniques which can be applied to prevent or to facilitate conception; in this article we will consider only contraceptive aspects. Techniques range from the rhythm method and methods based on observation of basal body temperature and changes in the cervix and other parts of the body (including cervical mucus), to the use of machines to measure physical and chemical properties of the mucus. The rhythm method is based on calendar calculations of a woman's menstrual cycle lengths over a period of time and an assumption that future cycles will be similar to past. It has been shown that for birth control purposes the past is not an accurate predictor of the future, which explains why the rhythm method is not effective.

There are three effective methods of natural birth control in common use: basal body temperature, ovulation method, and sympto-thermal methods. A sustained rise in basal body temperature can indicate that ovulation has occurred but gives no information about fertility before ovulation. Basal body temperature is often altered by the time of day, amount of sleep, alcohol consumption, illness or other factors; and basal thermometers are impractical in many situations. Many women have temperature patterns that are difficult or impossible to interpret(1): for example, very slow or "stair step" rise or temperatures too erratic to demonstrate a sustained rise after ovulation. Therefore, the basal body temperature method has limited usefulness.

Sympto-thermal methods combine basal body temperature with observation of mucus, cervical changes associated with ovulation, and sometimes even calendar rhythm. These indicators are used to confirm each other in defining times of potential fertility. However, they do not always coincide exactly, and a woman does not consider herself infertile until all signs are in agreement. In most cases sympto-thermal methods are unnecessarily complicated and are not as widely applicable as the Ovulation Method.



Lynn Roberson

The Ovulation Method is based entirely on observations of cervical mucus that flows to a woman's vulva and the sensation of wetness that accompanies this. This mucus is the only sign that is used to assess a woman's potential fertility each day. Mucus is affected by very few factors other than hormonal events, and mucus changes accurately signal ovulation. Unlike any other sign, cervical mucus also indicates infertile days in the absence of ovulation. For example, cycles without ovulation are common in women who are breastfeeding, approaching menopause, or who have recently stopped taking birth control pills. Since accurate observation and assessment of mucus depend only on interpretation by the woman herself, she can completely demedicalize the birth control process, keeping it entirely in her own hands and out of the control of the medical profession.

We have chosen to provide detailed information on mucus observation and the ovulation method as a primary tool for Woman Controlled Natural Birth Control. We use the term "Fertility Consciousness" to indicate the broader applications for increasing our understanding of our bodies and cycles.

The Ovulation Method — Historical and Political Background

The fact that cervical mucus is related to fertility was known well before modern times. The Bantu people in East Africa passed this information from grandmother to granddaughter at puberty. Each woman used a smooth stone to wipe the outer lips of her vagina to collect the mucus. We also know that the Native American Cherokee people passed similar information from mother to daughter. Disruption of these and other cultures has broken down traditional communication net-

works and values. Countries like the United States have further encouraged the breakdown of traditional communication by exporting profitable and sometimes dangerous medical birth control devices to control reproduction throughout the world.

Lynn Roberson



Modern research into cervical mucus began in the 1950s in Australia. Drs. Lyn and John Billings were looking for a method of child spacing that was both acceptable to the Catholic Church and effective in preventing pregnancy.(2) The Billings measured women's hormone levels by blood and urine tests while at the same time asking the women to observe their vaginal discharge and note their sensations of wetness or dryness at the vaginal lips. They found that women were able to identify the time of ovulation as accurately as the laboratory measurements of hormone levels! Women did not need to follow their basal body temperature in order to do this.(3) The Billings continued their work, devising "rules" for preventing or facilitating pregnancy based solely on mucus observations and gave it the name "Ovulation Method" or "Billings Ovulation Method".

The development of the Billings Ovulation Method was initiated by a priest, Maurice Catarinich, whose duties included marriage counseling. He selected John Billings to pursue medical research to find a solution to the weaknesses of the calendar rhythm method, the only "fertility regulation" method approved by the Roman Catholic Church at that time. Many Catholics around the world — leaders as well as rank and file — were rebelling against the prohibition of more effective methods. The goal of the research was to find a natural method that was effective in preventing pregnancy while also serving to reinforce Catholic teachings on sexuality, marriage, and women.

The Billings Ovulation Method is aimed at promoting and strengthening traditional marriage rather than increasing the range of choices open to women. Concepts of "family planning" and "child spacing" are emphasized, with motherhood within the nuclear family held up as the ultimate fulfillment of woman's "natural" role. A woman's right to control her body is denied:

Fundamental to the philosophy that inspires teachers of the method, and hopefully, those that learn it, is a rejection of all forms of artificial contraception, sterilization and abortion, leaving the marriage act always open to the transmission of life.(4)



Denise Minter

EIRTAW Workshop

The EIRTAW Workshop (Ethical Issues in Human Reproductive Technology: Analysis by Women) held at Hampshire College in June 1979 analyzed issues in the areas of contraception, sterilization abuse, prenatal diagnosis, neonatal care, sex preselection and *in vitro* fertilization. Adapted papers, edited discussion and commentary from the EIRTAW Workshop will be published by Humana Press, Clifton Park, NJ in the fall of 1980. Tentatively titled *Women Analyze Reproductive Technologies* (eds., Helen B. Holmes, Betty B. Hoskins and Michael Gross), the proceedings will appear in two volumes. To be put on the list for prepublication notification write: EIRTAW, P.O. Box 1022, Amherst, MA 01002.

Transmitting these values is fundamental to the way the Billings Ovulation Method is usually taught. Often teachers are more concerned with propagating this value system than with knowing and teaching the method accurately:

The teacher will inevitably communicate her own hierarchy of values to the clients. Her attitudes towards married love, towards the place of the physical sexual act in married life... will be sensed by the client, and will hopefully influence them [sic] to their advantage.(5)

In order to ensure that women learn this value system, the teaching is usually done on an individual (or married couple) basis or in classes including men, so that women remain isolated from freely sharing experiences with one another. The stated goal is to give each woman only the bare minimum of information necessary for her to use the method. This oversimplification, also found in books, is summarized by the term "KISS" (keep it simple, stupid!), a shorthand way to remind teachers that they should share as little factual information as possible.

Formation and Role of WOOMB

The leading promoters of the Billings Ovulation Method define their work as both religious and political. Since they are extremely concerned about retaining control of the Billings Ovulation Method as well as propagating it, they have formed the World Organization/Ovulation Method/Billings (WOOMB) and registered a trademark in its name. To obtain WOOMB approval for an event or for written materials, applicants must prove that their philosophy conforms with that of WOOMB. WOOMB is trying to gain a monopoly over selection and training of teachers by requiring and controlling a teacher certification process. Criteria include acceptance of and adherence to the moral philosophy of WOOMB.

In order to broaden legitimacy, achieve more credibility, and gain access to government funding, attempts are often made to camouflage the Catholic control of natural family planning programs. For example, non-Catholic supporters are often prominently used; also programs which appear to be sponsored by independent groups "just happen" to use space provided by a Catholic hospital.



Ellen Armstrong

Exploitation and Cooptation of Feminist Issues

WOOMB and other natural family planning organizations also capitalize on and coopt some of the issues promoted by feminists. They claim to be speaking out strongly against the sexual exploitation of women which they say is facilitated by the use of the other birth control methods that enable women to be available for men's pleasure every day, without substantial risk of pregnancy. (According to the "rules" of the Billings Ovulation Method, women should "abstain" from intercourse during times when they are fertile.) When examined further, however, their statements reveal concern about protecting the dignity of "natural" womanhood (and reinforcing the nuclear family). They do not address the differences in power between men and women within heterosexual relationships.

A striking example is a story presented at an international conference on the Billings Ovulation Method, International Institute V, about how the Billings Ovulation Method solved a "marriage problem." In this case the "drunk and inconsiderate husband" regularly raped his wife. The wife was instructed to be seductive and demand intercourse every night she was infertile. A decrease in the husband's drunkenness and rape was presented as evidence that previous sexual rejection by his wife had been the cause of his "inconsiderate" behavior.

WOOMB and other natural family planning movement groups also know that women are concerned about the health risks and possible complications of non-natural birth control methods. Proponents of the Billings Ovulation Method have prepared and circulated well-researched papers on harmful effects of hormonal contraceptives, IUDs, and sterilization. However, these presentations sometimes contain incomplete information and overstatement to the point of misrepresentation. There is a glaring absence of discussion of barrier methods (diaphragm and jelly, foam and condom, cervical cap), which have no serious health risks. When barrier methods are mentioned, they are dismissed with a brief allusion to "unaesthetic" aspects of their use. Encouraging facts about high effectiveness and physical safety are omitted. Reading this literature, one would conclude that when women wish to use birth control, they have only two alternatives: to risk serious injury by using dangerous contraceptives or to follow the WOOMB philosophy.

WOOMB and the natural family planning movement also claim to be fighting population control. At International Institute V we were told that American economic greed motivated funding for population control programs in Third World countries and linked population control programs to foreign aid. The real solution to poverty in these countries, according to Lyn Billings, is child spacing through use of the Billings

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Lynn Roberson

Is there a Gay Gene? Does it Matter?

by Doug Futuyma

As most readers of *Science for the People* are aware, speculations about the evolutionary and genetic bases of human behavior have stirred controversy since the publication of E.O. Wilson's *Sociobiology: The New Synthesis* in 1975.(1) In the early stages of the debate, Wilson(2) claimed innocence of any concern with the political and social implications of sociobiological theory; but in *On Human Nature*(3), he acknowledges these implications by explicit discussion of social issues. Much sociobiological speculation, in *On Human Nature* and elsewhere(4), seems ready made for the forces of oppression; apparently little more than Social Darwinism clad in new jargon, it seems to rationalize sexism, xenophobia (including racism), and capitalism, whether its authors intend such rationalizations or not. Indeed, Wilson denies any such intention in *On Human Nature*, and goes further: he clearly is proud to present sociobiological hypotheses that purport to affirm human rights and egalitarianism.

Foremost among these hypotheses is his argument, drawing on J.D. Weinrich's work(5) for supportive data, that homosexual behavior is not necessarily the pathological, abnormal perversion of nature that the Judaeo-Christian tradition and most of Western society portray it to be; rather, Wilson suggests, there is "a strong possibility that homosexuality is normal in a biological sense, that it is a distinctive, beneficent behavior that evolved as an important element of early human social organization. Homosexuals may be the genetic carriers of some of mankind's rare altruistic impulses." Thus "the traditional Judaeo-Christian view of homosexual behavior is inadequate and probably wrong," and "it would be tragic to continue to dis-

criminate against homosexuals on the basis of religious dogma supported by the unlikely assumption that they are biologically unnatural."(6)

As a gay person, I can only applaud Wilson's humanitarian concern; I agree that discrimination against gays is tragic. I consider the traditional Judaeo-Christian view of homosexuality to be barbaric, and I consider the oppression of gays, in Christian and non-Christian societies alike, an evil that demands moral outrage. However, I find Wilson's argument scientifically unsatisfying and politically dangerous; and precisely because this is one of the rare sociobiological arguments that arrives at an appealing libertarian conclusion, I would like to analyze it with the confidence that I will not be accused of fearing the awful truths that sociobiology threatens to reveal.

Theories of Sexual Orientation

An enormous part of the literature on sexual orientation is concerned with the "etiology," or causes, of homosexuality — motivated by the desire to "cure" homosexuals or to prevent the development of a homophilic orientation.(7) Moreover, the theories are mostly designed to account for the origin of homosexuality, rather than for variation in sexual orientation — a fine but critical distinction, for as Hoffman(8) says, those who inquire about the origins of homosexuality but not of heterosexuality assume without evidence that heterosexuality "naturally occurs," so that its origins need not be probed. Many psychodynamic theories are of this kind; they assume that homophilia is abnormal or pathological, and usually pronounce a value judgement on it as well, often by appeal to evolution. Thus the psychiatrist W.J. Gadpaille considers homosexuality to be "pathognomonic of disordered sexual development. The view of cultural relativity seems to be without justification . . . Biological intent . . . is to differentiate male and female both physiologically and psychologi-

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cally in such a manner as to assure species survival, which can only be served through heterosexual union.”(9) This clearly is a reflection of the attitude that Wilson hopes to combat.

Theorists who hold that homosexuality is pathological have variously argued that it has psychodynamic causes, such as disordered relations with parents (e.g., close-binding mother, absent father); that hereditary or environmental levels of sex hormones play a role; or that genetic differences among people predispose them to either a heterosexual or homosexual orientation. Any of these theories may equally well be propounded by those who do not make moral judgments. Kinsey et al.(10), Ford and Beach(11), and C.A. Tripp(12) have argued that sexual orientation develops, as do many other traits of personality, in response to a sequence of positive and negative reinforcing stimuli during development. And Wilson is not the first to suppose that differences in sexual orientation are the consequence of different, adaptive genotypes.(13)

The Sociobiological Theory of Homosexuality

By *assuming* that homosexual behavior is an evolved trait, which therefore must have some genetic basis, Wilson must confront the problem: How could homosexuality evolve if homosexuals, by not reproducing as much as heterosexuals (presumably), tend not to propagate the very genes that predispose them to homosexual behavior? The answer that emerges from sociobiological theory is very simple. Genes predisposing an individual to homosexuality may be carried, even if not expressed, by the relatives of homosexuals (because related individuals, of course, inherit many of the same genes from their common ancestors). Thus if homosexuals, freed from preoccupation with their own children, helped to raise their nieces or nephews, the genes for homosexuality carried by these relatives would survive and be propagated. Such genes could actually be advantageous, in the sense that they would improve the chances for survival of related individuals who carry copies of those same genes. This is one of many applications of the theory of “kin selection,” which can explain the evolution of many traits, such as altruistic behavior, that seem socially beneficial, yet detrimental to the individual that displays the trait. In fact, Wilson ventures that homosexuals’ solicitude for relatives might be extended into a genetically programmed tendency to be exceptionally altruistic in general.

By this argument from “kin selection,” one could predict either that (1) homosexuals and heterosexuals carry different genes, on average, predisposing them to their respective sexual orientations; or (2) heterosexuals and homosexuals might all have the same genotype, but a genotype that specifically programs one to develop into the heterosexual or the homosexual mode depend-



ing on which would be the most adaptive — just as a tree may develop thin flexible leaves in the shade, but thick, drought-resistant leaves if it develops in a drier, more exposed site. The first thesis, favored by Wilson(14), may be called the hypothesis of genetic polymorphism (polymorphism is the existence of two or more genotypes within a population). The second, entertained by Weinrich(15), may be called the developmental switch hypothesis. It resembles the idea of Kinsey — that we develop sexual orientation in response to our early environment — except that the developmental switch postulates that homosexuality and heterosexuality are *specific, adaptive* responses to certain environmental or social conditions.

The Genetic Polymorphism Hypothesis

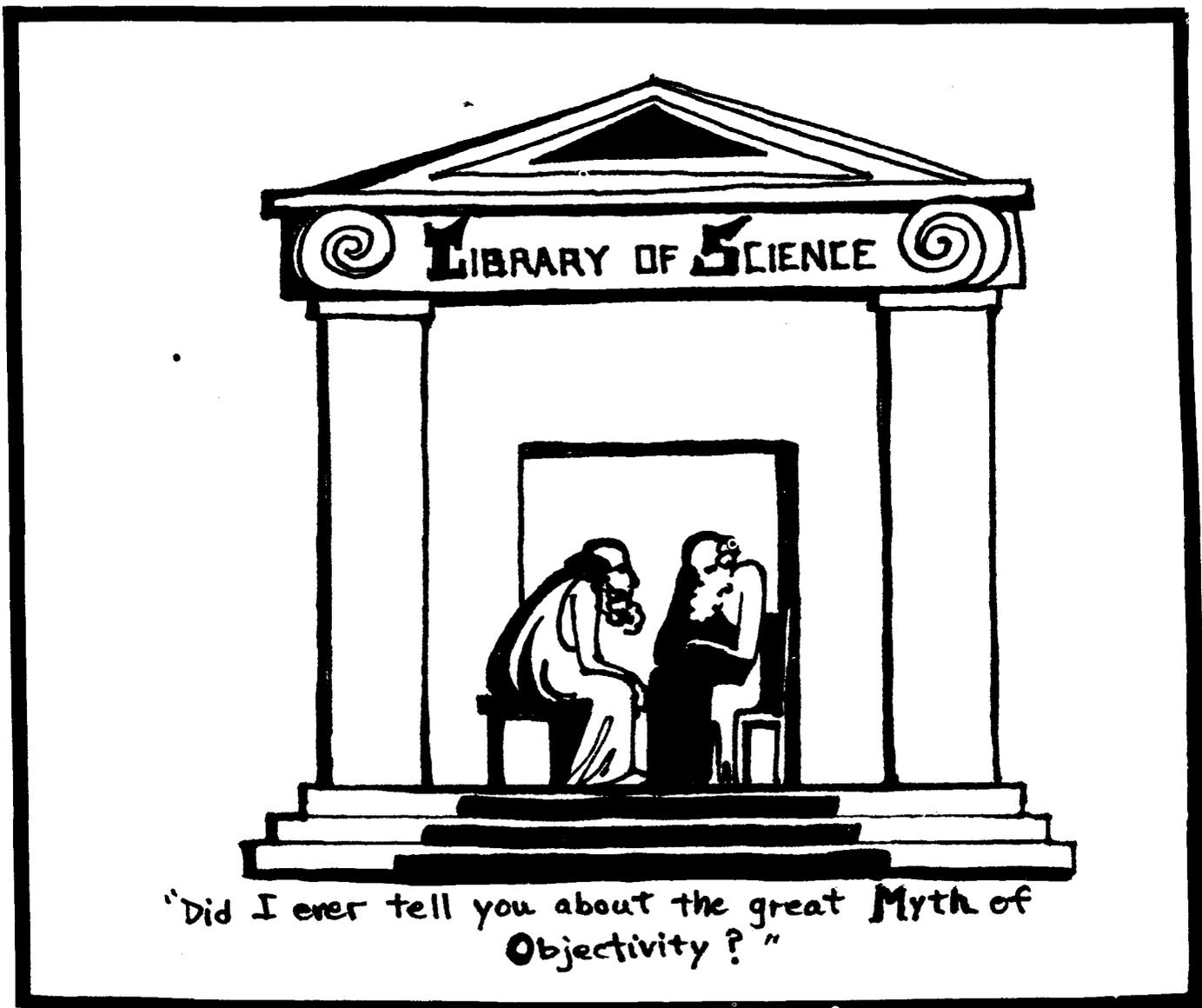
Are humans genetically polymorphic for sexual orientation? Do gay people have different genes from straights? There is a large early literature that supposed so, some of which is almost laughably naive. For example, T. Lang believed that male homosexuals might really be genetic females (with two X chromosomes rather than an X and a Y) in male bodies, and claimed that the sex ratio among the siblings of German male homosexuals was shifted toward a preponderance of

males, as if some of the genetic females in these families had been transformed into apparently male homosexuals.(16) (This study isn't quite as amusing when one reads that Lang obtained his list of homosexuals from secret police lists in the 1930's.)

There is a confused, contradictory literature on whether or not homosexuals differ hormonally from heterosexuals. Whether they do or not, a hormonal difference would not imply a genetic difference in any case, since hormone levels are affected by a multitude of physiological and environmental factors. The *only* acceptable evidence that differences in sexual orientation might be genetically based would have to come from the study of relatives — from evidence of transmission within families. But in humans, relatives (e.g., siblings) share not only genes, but a panoply of common environmental factors: parental attitudes, learning

experiences, playmates (including each other), and so forth. That is, children inherit not only their parents' genes, but their attitudes, values, religious beliefs, and so on. To demonstrate a genetic basis for behavior, it is necessary to separate the potential genetic component of this inheritance from the non-genetic component. This is why the studies of separately reared twins and of adopted children have been the only source of data that are even momentarily worth considering in the controversy over the inheritance of IQ.(17)

In the case of sexual orientation, no such data exist. There are *no* studies of the degree of concordance of sexual orientation of separately reared twins or other relatives: indeed, there are only two studies of sexual orientation in twins. The one by Heston and Shields(18) that Wilson quotes in his support includes a sample size that is simply too small to demonstrate anything at all.



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The only extensive study is by F.J. Kallmann(19), who devoted his life to proving that psychological traits are genetically based.(20) Kallman made the astonishing claim that the cotwins of 40 monozygotic (i.e., "identical") homosexual twin "index cases" were homosexual in every single case.

Kallman's other major work, on schizophrenia, has been severely criticized: for example, he apparently concluded that schizophrenia is inherited by diagnosing schizophrenia from 25-year-old hospital records written before 1902, when the entire vocabulary of psychiatry was different.(21) In the case of his study of homosexuals:

- He does not specify how he determined which twins were monozygotic ("identical") and which were dizygotic ("fraternal"); and the methods usually used in his time are untrustworthy.(22) He doesn't even say whether he made this determination before or after he obtained the information on the cotwins' sex histories.

- He claimed that many of his subjects were emotionally and socially maladjusted, a maladjustment which may well have been in the eye of the biased heterosexual beholder, but which nevertheless raises doubts as to whether or not the sample was representative, or whether the homosexual behavior may have been a pathological manifestation of a psychological disorder.

- Despite his assertion that sexual orientation is very highly (indeed, incredibly) heritable, he found no exceptionally high incidence of homosexuality among the dizygotic male cotwins or the fathers of his index cases.

- For only 8 of 71 male homosexual index cases was he unable to obtain "a complete investigation of . . . sex history." Anyone who is familiar with the protective reactions adopted by homosexuals against social oppression will find his or her credibility severely taxed by the claim that virtually every one of a group of homosexual cotwins chosen *a priori* would not only acknowledge homosexuality, but volunteer enough information to conclude that they "tend to be *very similar* in the part taken in their individual sex activities" (emphasis in the original).(23)

- And in any case, there is no evidence that the twins were reared apart, so no genetic conclusions can be drawn from the study. Thus there is no evidence for a genetic basis for variation in sexual orientation.

The Developmental Switch Hypothesis

The other possible version of the kin-selection argument is that gay people, rather than having special genes for homosexuality, have the same genes as heterosexuals — but genes which specifically program either homosexuality or heterosexuality, depending on which would

be adaptive for the individual. For example, Weinrich has suggested that it might be appropriate to become homosexual if one's physical condition precluded the likelihood of becoming a successful parent.(24) This idea is quite similar to the "learning" theory of Kinsey et al., which holds that sexual orientation, like our tendency to become extroverted or introverted, peaceful or belligerent, analytical or fanciful, arises through a long succession of conscious or unconscious responses to innumerable experiences or stimuli. The difference is that the evolutionary notion of an adaptive "developmental switch" is a biological determinist view — we are genetically programmed for specific responses to specific situations — whereas the "learning" theory is as free of determinism as a psychological theory of personality development can be.

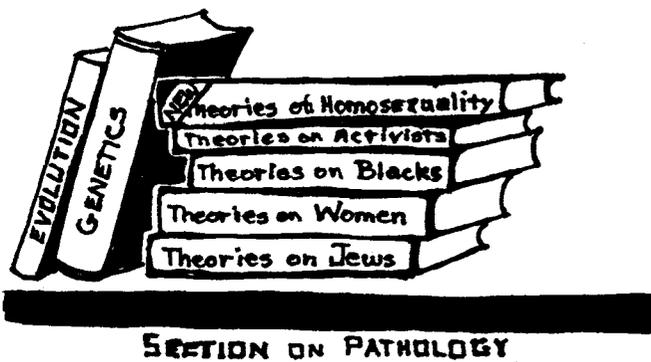
The subtle distinction between these theories can be illustrated by a rather absurd analogy. Why do some people speak with New England accents and others with Georgian accents? A "learning" theory would hold that as children we develop our particular speech patterns by responding to a succession of stimuli — the sounds we hear and imitate. A "biological determinist" theory might suppose that our environment triggers a physiological change, perhaps in the vocal cords, so that we develop either broad *a's* or a slow drawl, depending on whether our childhood winters were cold or warm. The one theory emphasizes the action of environmental events on an initially "clean slate"; the other invokes specific genetically controlled alterations in the developing person, that then affect the responses to environmental events.

But although the two ideas are philosophically different, it is hard to know how to distinguish them in practice. By analogy, we may agree that each of us has, or at least had when younger, the genetic capacity to develop fluency in both English and German — but shall we take the biological determinist position (more extreme than the most rabid sociobiologist would take) that our genotype *programs* us to form perfect umlauts when we develop in a German environment, and not to do so in an English-speaking culture? Or shall we simply say that our genotype *allows* us the flexibility to develop the capacity for umlauts or not?

If Wilson cannot offer a way of telling whether our genotype programs or simply permits various paths of development, his determinist theory is untestable, and so is bad science — or isn't scientific at all, some philosophers would say.(25) The only tests of the theory that Wilson offers are actually very weak. Biological determinists are fond of pointing out similarities between human behavior and that of other mammals as evidence of the evolutionary, hence biological, foundations of human behavior. And Wilson indeed notes that homosexual behavior has been observed in many species, especially of primates. But every evolutionary biologist

is aware that the similarities between very different species may not be homologous, with the same genetic foundation, but analogous, like the fish-like form of fishes and porpoises. Indeed, Frank Beach(26), a leading student of comparative sexual behavior, has stressed that there is no reason to suppose that homosexual behavior in other animals is homologous to that in humans, and notes that they are actually very different in some crucial respects.

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Wilson's other line of defense is to argue that if homosexuality is genetically programmed because of its kin-selected advantage, we would expect homosexuals to play special, people-oriented, social roles. I'm not quite sure of how he logically arrives at this conclusion, but in any case he cites as evidence cases of homosexual or transvestite men playing the role of shaman or *berdache* in some pre-industrial cultures, and the supposed tendency of homosexuals to enter upwardly mobile, white collar professions in western industrial societies. The evidence that either of these claims is true is far from compelling (because, for example, homosexuals may simply "come out" more often if they are in these professions); and I fear that by citing this "evidence" Wilson may contribute to the propagation of stereotyped myths about how different gay people are from heterosexuals. But there is strong reason to believe that if gays tend to enter special professions in our society, they do so in response to social pressures that make some professions safer than others. In other words, these roles are imposed, not prompted by a biological imperative. And it is certainly possible that social imposition was as important in pre-industrial cultures as in our own. The evidence that homosexuality is a genetically programmed adaptive developmental pathway is absurdly weak.

Does it Matter?

Wilson's argument that homosexuality is biologically "natural" — and the more general argument that it is "genetic" or "inborn" — appeals to a great many gay people. (The relevant excerpt from Wilson's book, and an enthusiastic review, appeared in a major gay periodical, *The Advocate*(27).) It is an appealing argument for at least two reasons: the answer it provides to heterosexual bigots who claim that homosexuality is an "unnatural" "crime against nature"; and the secret satisfaction it gives to inwardly guilty homosexuals that their sexual orientation isn't their fault, for it was programmed into them by a biological imperative which absolves them from responsibility.

Insofar as *any* deterministic theory of the origin of homosexuality panders to "gay guilt," it is, I feel, psychologically and politically counterproductive. Above all else, gay people need to cultivate self-acceptance, and to cleanse themselves of the notion that they need to blame their orientation on anyone or anything — for this implies that their orientation is a fault.

Indeed, the entire focus on the causes of homosexuality is scientifically questionable and politically repressive. To concentrate on discerning the causes of homosexuality is, first, implicitly to judge it a personal or social problem, and to divert attention from the more pressing, liberating questions: What cure is there for society's homophobic, oppressive attitudes? And how can we help people whose judgement of their own worth has been warped by repressive societal values?

Moreover, the focus on the causes of homosexuality is flawed at its very base. The behavioral traits for which biological bases have been sought are most often the characteristics that are perceived as politically or socially threatening. There hasn't been very much debate over the possible genetic basis of the ability to whistle, or of people's variable appreciation of Beethoven, or, in the realm of sexual orientation, of the degree to which we are sexually and emotionally attracted to people on the basis of their hair color, intellectual depth, or other physical or personal characteristics. Attraction to people on the basis of their sex is singled out for analysis as a special, separate characteristic — it is reified — because it is viewed as a social problem, not because it is scientifically interesting to any unusual degree, or because it is a separable, independent part of the personality. Indeed, the greatest insult to gay people, and the greatest scientific error, may be to divorce "sexual orientation" from the emotional context of feelings and responses that an individual has toward other people — a complex of responses in which the sex of other people enters as only one of many interdependent variables. We do not have simple knee-jerk responses to the single stimulus "male" or "female" — we have complex emotional, affectional, and erotic responses to the multitude of stimuli another individual presents; and it is folly to

suppose that the response to the person's sex is genetically or psychologically separable from the rest of us.

Insofar as the sociobiological theory of homosexuality serves as an argument for gay rights and social acceptance, it is unfortunately a flawed and indeed dangerous argument. It is dangerous because it is certainly within the realm of possibility that tomorrow's research could disprove the hypothesis that homosexuality has any biological foundation whatever — and where then lies the argument for gay rights? It is a flawed argument because it accepts and rests on the same profoundly non-sensical assumption that supports heterosexual bigotry: that "what is biologically natural is good; what is not, is bad" — the notion that our morals, ethics, and laws *should* be shaped to fit our biological urges, as we conceive them to be. To give Wilson credit, he remarks that "it would be . . . illogical, and unfortunate, to make past genetic adaptedness a necessary criterion for current acceptance"; but in the same breath he says that "it would be tragic to discriminate against homosexuals on the basis of religious dogma supported by the unlikely assumption that they are biologically unnatural" — implying, as he does so often in his book, that biology should indeed inform ethics.

The entire argument about sociobiology revolves about this crucial issue: that biology, natural selection, evolution cannot, by any logical deduction, serve as a guide for ethical progress. Thomas Henry Huxley, "Darwin's bulldog," made the point vigorously in 1893(28); critics of sociobiology have repeatedly made it today. Suppose the sociobiologists were right — that humans are innately aggressive, that men are genetically more prone to competitiveness than women, that homosexuality is the product of adaptive genes that confer a tendency to be solicitous and altruistic. In no way does it follow that we should promulgate armed conflict (or try to prevent it any more assiduously than if we believe that aggression is a product of culture); nor does it follow that we should discriminate against women in politics and business. Neither does it follow that homosexuals should be granted rights on the basis of their biology. Women, racial minorities, and gay people are entitled to freedom from discrimination not because of their biology, but because of our idealistic conception of the dignity of the individual. Whatever our biological evolution has been, our ethics are part of our cultural evolution, in which we have come to strive for humanitarianism and to combat oppression out of respect for human dignity. □

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Textbook Sexism:

Sexism in College Biology

by Eileen Van Tassel

Among almost 207,500 science and engineering Ph.D.s in this country, 93.4 percent are white and 92.1 percent are male. In the biological sciences, women hold approximately 11 percent of the doctorates. This has a profound effect on science and on what we perceive as the truth about ourselves as male or female human beings. Sexism in biology textbooks, the research from which these materials are derived, and the way teachers present biology have a special impact on students. In most cases my comments are based on books I have used or that have been sent to me for examination, reports and discussions with students of both sexes (but mostly women), interactions with my colleagues at Michigan State University, and an examination of books used in a variety of other courses.

My interest in the question of the influence of male overrepresentation in the biological sciences arose during a classroom discussion of how to tell the male from the female skeleton in the lab. Most of my students were convinced that sexing skeletons was a relatively easy task and that major differences existed, especially in the hip and shoulder bones. Males were more certain of this than females, but both sexes challenged me to demonstrate these presumed differences. Since I didn't know how to tell, and since I had promised to teach them what they wanted to learn, I began searching the literature for differences in skeletal structure. I was amazed to discover that this is not at all a simple task and that the widely held notion that females have broader hips than males is a myth, at least with respect to skeletons. In reality, there is no single measure which will separate all female from all male skeletons, and the major discriminating measure is a ratio of hip width to length, measured from three points. This ratio has a 15 percent higher average in females, but it varies considerably with race, so that there is much more overlap when all humans are pooled.

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Further interest in the field of sex differences led to a much more critical examination of the literature on sex differences, especially as they are presented to undergraduate students. Several points of interest emerged during this study. First, warnings as to limitations of primary research findings are often dropped as the studies are presented to the undergraduate student in text materials. This practice leads to an exaggerated list of sex differences, and a number of statements which are patently false as written, for instance, the common statement that females have wider hips than males. Less common, but equally untrue, is the assertion the females have different arm angulation due to differences in the skeletal shoulder girdle. In fact, these bones cannot be used, even by experienced anatomists to sex skeletons. Of course, it is well known that exercise of the upper body can influence the development and strength of the bones and ligaments, and that females are usually denied this experience, but this is hardly a biological phenomenon. Textbooks virtually ignore sex similarities in favor of sex difference. Of course, there is no such field as sex similarities, only of sex differences, an interesting reflection on biology itself.

Another major bias lies in the area of selective reporting. Male weaknesses are minimized or ignored, female strengths are similarly downplayed or absent. Male weakness is minimized, for example, in the treatment in college-level genetics texts of x-linked disease. Many of these recessive genes result in tragic diseases and early death for little boys. However, only 2 of the estimated 100 such traits are mentioned in most texts: classical Hemophilia, which is extremely rare and red-green color blindness, which is relatively innocuous. But what of the most common form of muscular dystrophy (Duchenne type)? We are all familiar with the annual "telethon" to raise money for the unfortunate victims, but how many people are aware that this is a disease of little boys? Or that agammaglobulinemia, which requires total isolation in a "bubble" away from any possible pathogen, is also sex-linked? Or microcephaly, etc.? Fortunately, most of these diseases are rare, but, taken together, they may help explain the higher mortality rates of males at every age. One recent author (Singer, *Human Genetics*, 1978) wishes it weren't so. On p.34, he writes,

But arguments from population genetics and recent advances in our understanding of the genetics of sex chromosomes have made it seem unlikely that men are at much of a disadvantage simply because of possessing a single x chromosome . . . In normal women, only one x chromosome is genetically active in each cell, the x chromosome is nonfunctional.

There are two errors here. First, it has not been proven that the "inactive" x chromosome is completely nonfunctional. Second, the inactive x chromosome is randomly distributed in each stemline of cells. Thus harmful recessive genes on one x chromosome are still compensated for by the active gene on the other x chromosome in adjacent cells.

The fact that "strength" has a variety of manifestations in humans is usually overlooked or reduced to muscular strength, in which males, on the average, excel. For instance, in his *Human Genetics* (second edition, 1975, p.182), Albert Winchester writes,

In many forms of life male strength is favored when there are battles for possession of the females. The winners have multiple matings, whereas the losers are denied mates. In primitive human societies such struggles may have been a factor. Also, the strength of a man in overpowering a reluctant female may have aided in selection of strength in a male and a corresponding reduced strength in the female.

Apart from the obvious sexism in justifying rape, and the fact that there is no evidence for this speculation, the subtle implication here is that males are stronger than females in all ways and at all times.

The facts contradict this negative image of "the weaker sex." Not only do females have fewer genetic diseases but they also seem to be constitutionally stronger. Many more diseases of pathogenic origin occur more often in men than in women than is true of the reverse, and men suffer twice as many respiratory and circulation complications after surgery than do women. Birth defects are more common in male infants. But even in the area of muscular strength, differences are less clear than we have been led to believe. Pound for pound, for instance, women's leg muscles are stronger, on the average, than men's. (Most authors, however, speak only of upper-body musculature.) Much is made of the greater fat deposits in women, but no mention appears of its survival value in preventing brain damage under conditions of starvation. The argument here is not to disparage males, but rather to be honest and fair to all students regarding the strengths and weaknesses of both sexes.

Factual errors can be corrected, but even worse is the disturbing frequency of insulting comments in many texts with respect to women and female biology. We

knew this was common in gynecology texts, but biology has its share too. Volpe, for example, in the BSCS series *Human Heredity and Birth Defects*, remarks on p. 117, that, "The old tiresome cliché of the male about 'crazy, mixed-up women, now merits attention." In discussing the triplet code for amino acids later in the same text, Volpe explains: "Let us say that T in the second triplet is substituted for A, so that the triplet reads TTC instead of ATC, which would specify 'A' instead of 'I'. The word would now be "RAPE" instead of "RIPE"." (As one of my students, a male, snickered, "I get it, ripe to rape, ha, ha." It was this comment which drew my attention to the example.)

Returning to Winchester's *Human Genetics*, p.30, the caption beneath R.J. Blandau's beautiful photograph of ovulation reads: "Ovulation. Like a pimple bursting to release its pus, a Graafian follicle of the ovary bursts and liberates its contents including the egg which can be seen near the end of the erupting material." The analogy is repeated in the text. How are young women to feel about their bodies after reading this disgusting comparison? (This is really an awful book, but it is widely used.) A few pages later: "Parthenogenesis in human females has *often been claimed*, but these are mostly just efforts to avoid acknowledgement of sexual relations." (My emphasis.) Note the contrast here between the use of the word "often" in this unsupported assertion about female behavior versus the word "rare" to describe verifiable x-linked diseases in men. Predictably, Winchester sees no need to mention social factors,



such as ignorance, or the fear of punishment due to a double standard of sexual behavior which might cause a woman to deny intimate sexual contact.



Lynn Roberson

Many feminists hoped that after a flurry of critical writings, textbooks would begin to change. We have been disappointed even in these minimal hopes. A case in point is a 1978 text by Sam Singer, *Human Genetics*. On p.72 we are told that the full-page illustration is a "... Portrait of people of various human races ...". The "people" are all males. Several pages later, we find the seemingly inevitable photograph of a bare-breasted Tahitian woman peering out behind an uplifted arm which covers most of her face. Her face is pictured separately next to her other photo. Books illustrating human evolution also frequently show all-male assemblages marching across time, and where females are included, they are either doing nothing or are engaged only in food preparation or child care.

Sexism is also illustrated by the speed with which research supporting existing stereotypes is incorporated into text materials in contrast to the inordinate caution in including data which is contradictory to the stereotypes. For instance, Martha McClintock's paper on menstrual synchrony in college women which suggests that college women, like mice, unconsciously respond to

odor molecules, has appeared in recent medical and psychology texts, although the work included women taking birth control pills and has not been replicated. In contrast, studies indicating hormone cycling in normal males are rarely mentioned. Sometimes, if a stereotype is not supported by the data, the researchers will keep looking. In Eibl-Eibesfeldt's *Ethnology*, the author reports that male and female subjects responded similarly to a crying baby, as measured by pupillary dilation: "Sex differences were not clearcut in the small sample of the study, and *further work is being done.*" (My emphasis.) I'm sure that *some* sex difference will be found, if they have to work on it for the next ten years.

Virtually any study, no matter how trivial, which shows a sex difference receives space in our most prestigious journals. A clear example of this is a paper published in *Science* in 1976 entitled, "Carrying Behavior in Humans: Analysis of Sex Differences." The two-page paper, complete with an illustration and statistical as well as cross-cultural comparisons discovered that schoolgirls carry their books near their chests, while schoolboys carry them near their sides. Based on their research, the authors conclude:

- (i) We cannot discount the possibility of a genetic predisposition for females to assume more closed positions than males.
- (ii) Because of sex differences in hip width (sic), hip shelf, and lower arm angulation between physically mature males and females, some carrying positions are probably more comfortable for one sex than for the other.
- (iii) Interacting with these relatively fixed sexual differences is learning.

Thus does a body of scientific "evidence" accumulate. Young women in one of my classes read this paper and found it comical that apparently the authors failed to realize that most young women experience embarrassment during adolescence. Furthermore, young boys often make rude and insulting comments about women's bodies and stare at their breasts. Shielding oneself with what one is carrying seems pretty normal, but hardly genetic. Not surprisingly, this genetic "sex difference" was greatest between 10th and 12th grades, rising rapidly after the 6th grade.

This last case raises another important question for educators. Why is it so extremely rare for scientists to discuss the obvious sexism of the culture in their work? Surely such interpretations must enter their minds as they think about their conclusions, but there seems to be an unwritten taboo here. Perhaps they unconsciously want to become the center of controversy and attention (I can almost hear them at professional meetings, gleefully telling one another how much "feminists" object to their "findings" — only they will probably call us "libbers".)

Other primary research is more dangerous. Rape of females is frequently justified as "natural" by applying the concept to lower animals such as ducks ("Sociobiology of Rape in Mallards: Responses of the Mated Male," *Science*, Vol. 197). In the same volume we learn that even worms commit rape ("Homosexual Rape and Sexual Selection in Acanthocephalan Worms"). This nonsense reduces rape to a biological phenomenon and effectively removes it from the realm of willful choice or morality. How convenient. I suppose that before long biology students will learn from their texts that rape is normal and frequent in the animal "Kingdom." This treatment also reinforces the myth that rape is a crime of passion or high sex drive, whereas data gathered from the convicted rapists themselves indicate very clearly that the vast majority of rapes arise from a need to dominate, humiliate or degrade women, not from sexual desire.

clearly that the value-free image of science is a myth. All of us need to stop using terms such as non-sexist or non-racist, because these terms imply a finished product, a goal already achieved. Instead we must become and use the terms "anti-racist" and "anti-sexist". These phrases at least admit the reality which is apparent daily and move us to action, toward eliminating not only the overt manifestations, but the underlying causes as well. Too often scientists give only lip-service to their printed caveats, but in their daily lives, speak and behave in ways which contradict the objective appearances given by their frequent warnings to others. To hear professors (usually male) say laughingly, "I suppose this is sexist, but . . .", is definitely not what I mean by becoming anti-sexist. In fact such behavior trivializes feminist concerns and makes women the butt of yet another round of ridicule. Added to the multitude of negative messages and denials of reality bombarding women



Young people entering university studies hoping to find a more enlightened approach are consistently disappointed. Sexual stereotypes are often reinforced by male professors. Young women in my classes often report instances of insulting and degrading jokes and disparaging comments made about women by their teachers. One professor went so far as to use a cartoon from *Playboy* magazine to illustrate a final exam question. When I confronted him about the sexism of this action he denied that anyone in the class had been offended.

Finally, there is the attitude encountered frequently in academic circles when faced with feminist criticism of, 'yes, yes, we know all about bad science, what can you tell us that is new?' This attitude implies that all that needs to be done is to know that sexism exists in order to eliminate it. The examples I have cited are far from an exhaustive search, but I think they illustrate

daily from the larger society, it is no surprise that women often lose their sense of humor and become paranoid or embittered. This is especially true, I feel, of younger women beginning their scholarly careers, because, while oppressive attitudes are still common, many of their teachers are behaving as if the war is already over. In reality, it is just beginning, and it is past time to face this fact honestly. □

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Book Review

Contested Terrain:

The Transformation of the Work in the Twentieth Century

by Richard Edwards (New York: Basic Books, 1979)

Marx generally argued that the demands of capitalist production would create increasing antagonism between workers and managers, culminating in the rupture of existing social controls. The fact that this rupture has not happened has led Marxists to question how capitalist control is actually maintained in the workplace. Harry Braverman pioneered this field with his analysis of the long-term trend towards the "deskilling" of work. Drawing directly on existing managerial literature (especially the work of Frederick Taylor), he argued that employers had successfully separated planning from execution on the job, thereby depriving workers of any basis for criticizing or reconstructing the existing order. What Braverman left out was the study of worker response to the introduction of new control systems, and the way these responses affect managerial strategies. Richard Edwards' new book goes a long way towards filling this gap, and in the process he fundamentally revises Braverman's approach.

The virtues of the book are unmistakable. Edwards' analysis, though ambitious and wide-ranging, is persuasively presented and based on very solid historical knowledge. He

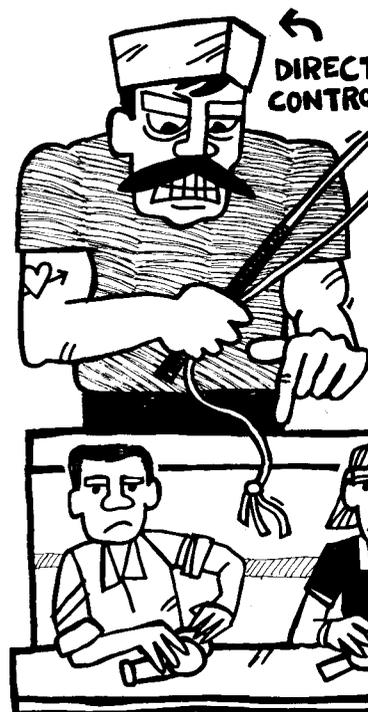
Charles Heckscher is a member of the Group for Work Democracy, a Boston-based collective studying the prospects for worker participation and self-management.

does not avoid theoretical complexities — he has a penchant for three-part schemes, which sometimes split into nine-part cross-schemes — yet he presents them lucidly and with a comfortable flexibility. These qualities have already earned the book almost equal praise from *In These Times* and *Business Week*.

The core of his argument is the description of three different forms of capitalist control of the work process, which have roughly succeeded each other in time. The first is "simple control," based on the direct personal authority of managers. In an elegant piece of historical analysis, Edwards shows how this structure broke down in the huge monopoly firms which developed in the early years of this century. In the face of increasing worker resistance to arbitrary personal commands, employers tried a number of experiments in search of a new form of control adequate to these large, impersonal organizations. One relatively unsuccessful attempt was Taylorism, which sought to preplan a worker's every movement on the job. More successful was "technical control," exemplified in the assembly line, in which the machines themselves carried in depersonalized form the commands of management. But as we know from countless studies of "blue-collar blues," worker resistance to the monotony and alienation of machine-governed work has proved costly to employ-

ers. Thus the development, in the post-World War II period, of a new and more subtle style of management which Edwards labels "bureaucratic."

Though the earlier forms of control survive today in secondary sectors of the economy, it is the bureaucratic form which, Edwards argues, increasingly characterizes the most advanced and powerful companies. It is marked by the extension of written job descriptions, formalized disciplinary and reward procedures, and finely divided functional hierar-



Steve Karian/Red Apple Art

place

Reviewed by Charles Heckscher

chies. By embedding authority in the total social structure of the firm, this system masks more fully than previous ones the relations of domination in the workplace. Indeed, by offering workers a lifelong "career path" with steadily increasing benefits and security, such firms often succeed in tying the perceived interests of the work force to the success and growth of the company — a development which poses new problems for the critics of capitalism.

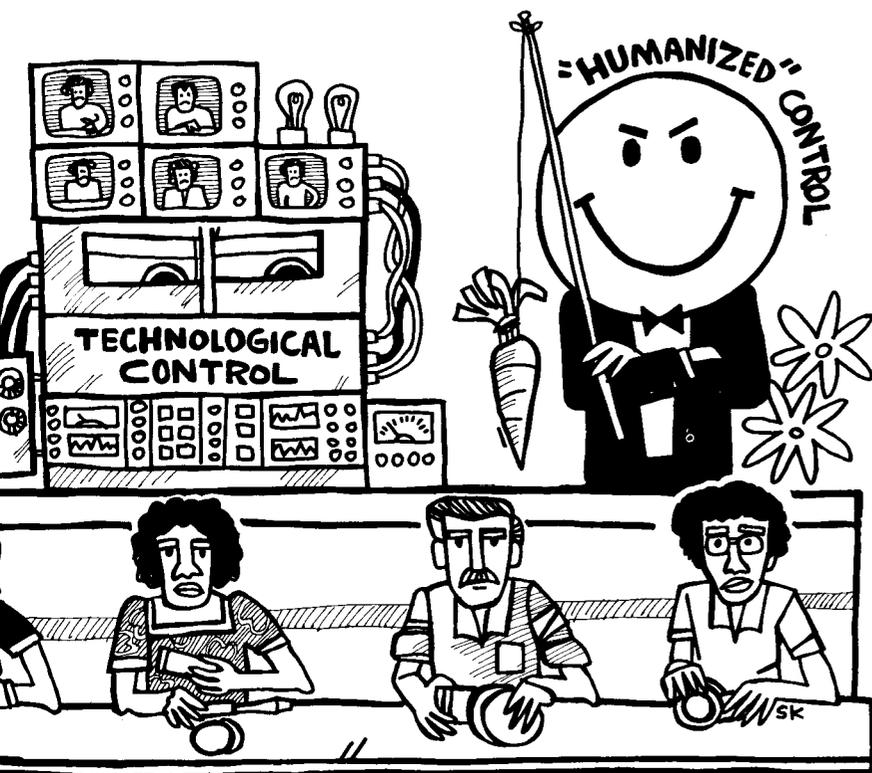
Even in this brief description it should be clear that Edwards di-

verges more and more from Braverman as he approaches the modern era. For Braverman Taylorism — the fragmentation and deskilling of the work process — is the key to understanding the evolution of the workplace. Edwards sees in Taylor's ideas only one, and not the most successful, of management's attempted solutions to the crisis of power in large firms. It is precisely the careful attention Edwards gives worker resistance to Taylorism — a topic Braverman leaves aside — which leads him to view the bureaucratic form as a highly significant innovation, solving at least temporarily for capitalists the problem of "motivating" the work force.

There seems little doubt that Edwards is right in his general perception that something other than Tayloristic control is emerging in the monopoly sector; understanding the limits of and contradictions within this structure is an important task. Edwards makes a very good start, but areas of vagueness crucial to his concept of "bureaucracy" remain. The term has classically

referred to a highly impersonal, formalized structure of carefully defined roles, and Edwards focuses on those aspects of modern management that reflect this image: the increasing differentiation of hierarchical positions and the spread of written "job descriptions." Yet many of the most crucial aspects of the new style are developing in quite another direction. A major catchword of management consultants these days is "humanism," and organization development specialists speak enthusiastically of improving the "quality of working life" of employees. The thrust of the new ideology is not to maximize the specialized efficiency of workers, but rather to stimulate their active loyalty to the firm. The control system, in other words, presents a warmly paternalistic face which is far more personal than the "technical" control methods which preceded it.

And there is more than just talk in this management strategy. To a considerable degree the very largest companies have, during the past decade, experimented with various forms of "work restructuring" which increase the responsibility of workers on the shop floor. These experiments range from job enrichment, which reverses the fragmentation process and restores some kind of "complete" task to the worker, to autonomous work teams in which groups of employees have control over job assignments and pacing. One source at the Harvard Business School estimates that over half of the "Fortune 500" companies are now trying such initiatives. One result has been the reduction of rigidly defined roles, allowing workers more freedom to share or rotate tasks. In some leading companies the trend towards increasingly differentiated positions and rewards has been reversed, and a process of simplification has begun even at the lowest levels. Edwards recognizes some of these developments, but he



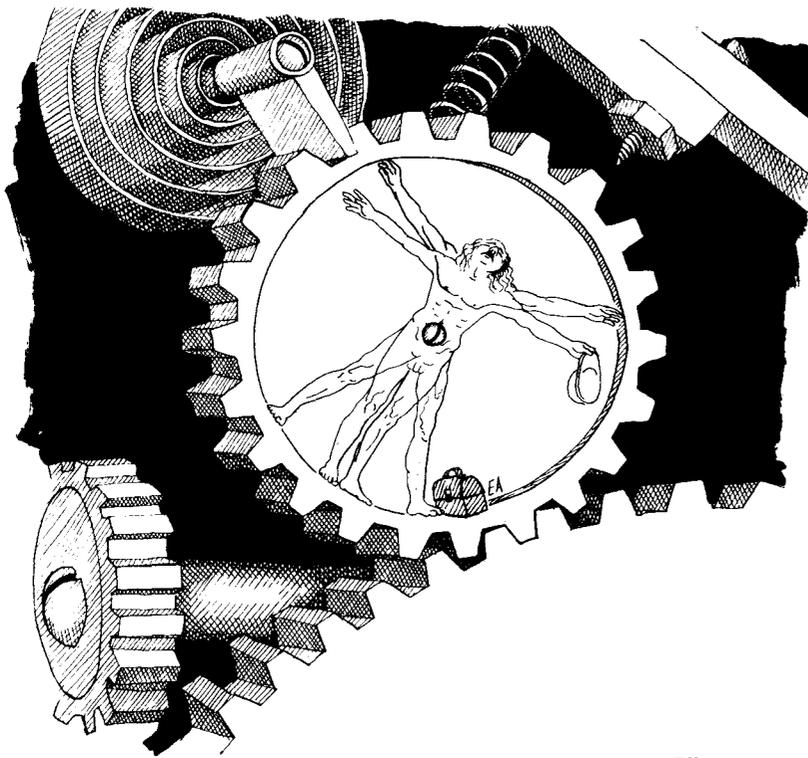
seems uncertain about how to fit them into his notion of "bureaucracy."

Having sketched a picture of management's new means of control, Edwards goes on to explore the weaknesses of this bureaucratic system. He identifies three contradictions which may bring it down. The first is that the high levels of job security and benefits guaranteed in the new structure create rigidities in the labor market, transforming labor more and more into a fixed cost. The second problem, he suggests, is that the intermingling of business and govern-

Edwards's claim is that bureaucratic control has "inadvertently . . . established the conditions under which the demands for workplace democracy flourish." It does this by creating among workers a sense of long-term identification with the enterprise. Such demands, he says, "constitute a potentially fundamental challenge to employers' power." (p.153). Furthermore, management's attempts to channel these desires via the work restructuring schemes mentioned above compound the danger. According to Edwards, the granting of some control over workplace decisions leads

eaucratic" system of management often sparks resistance and organization among workers; but the more "humanistic" bureaucracy which is spreading today has not done badly in muting dissent. Though employers made some mistakes in early experiments, it appears that they have increasingly succeeded in designing job structures that grant significant yet limited autonomy to workers, in a way that does not threaten basic management prerogatives. The work humanization movement can therefore be seen as an attempt by employers to bring the democratic aspirations of workers into the support of capitalism — and contrary to Edwards's claim, it is not at all clear that this is impossible.

Yet, there is still more to the book. In the final section Edwards broadens his focus from the "contested terrain" of the workplace to the class structure of the society. Again his divergence from Braverman leads to new conclusions: where Braverman thought that the deskilling process was leading to a homogenization of labor, Edwards argues that the coexistence of different forms of control in different parts of the economy leads to "fractions" within the working class. Two chapters are devoted to the description of these fractions, and to trying to show that these divisions within the working class are ultimately less important than the common grounds of antagonism to capitalists. In a final chapter, he argues further that the power of large firms poses a direct threat to democracy in the political as well as the industrial sphere, and he closes with a call for socialists to take up democracy as a strategic end in itself. These arguments towards the end of the book move away from the solid base of historical evidence which supported the earlier sections, and they are perhaps necessarily less convincing; but they define issues that are likely to be central to political debates of the next decade. □



Ellen Armstrong

ment policy made necessary by the centralization of industry will become increasingly visible to the general populace and create a crisis of legitimacy. The third contradiction, unlike these first two, is located in the workplace itself — and it brings once again to the foreground the problem we have already seen: the problem of confronting the "human" face of modern management.

to a domino effect by which workers will soon push for wider powers. In this way "capitalists themselves are led, even forced, to introduce the very schemes that threaten their grip."

It is an exciting argument, but Edwards presents no evidence for this supposed domino effect. In fact, the evidence in general can be read to suggest an opposite and more disturbing conclusion. A *truly* "bur-

Blueprint for Disaster

Westinghouse Brings Nukes to the Philippines

by E. San Juan Jr.

Sensational chic? Or plain and simple truth?

Consider the following facts: Westinghouse Electric Corporation has sold a nuclear reactor costing \$1.1 billion to the Marcos dictatorship in the Philippines. This 620 megawatt reactor is being constructed in Morong, Bataan, on the slope of an active volcano, Mt. Natib. There are three other live volcanoes within a twenty-mile radius. In addition, the plant sits astride a major earthquake fault and is on the Bataan peninsula which is subject to frequent tidal waves from the South China sea. Morong, Bataan is 45 miles west of the commercial and cultural center of the Philippines, metropolitan Manila, with a population of at least seven million people.

The Union of Concerned Scientists in the United States has reviewed the plant design and found over 200 major engineering defects.(1) In a secret study, recently leaked out, the International Atomic Energy Agency concluded that the volcano on which the reactor is sited could explode anytime.

Although President Carter has issued a decree making reactor exports subject to the requirements of the Environmental Protection Agency (EPA), the US Nuclear Regulatory Commission (NRC) which is the chief environmental agency concerned in this case has still not established definite and tested standards for evaluating overseas reactor orders. Like most Third World nations, the Philippines has no nuclear regulation, multiplying the chances of accidents, including a meltdown disaster. What is more revealing is that the NRC itself has admitted that the Philippine plant design has not been rigorously tested for safety, especially for earthquake and volcanic dangers. It admitted that no adequate Environmental Impact Statement (EIS), required for licensing domestic reactors, has been made for the Philippine project. Certainly after the Harrisburg incident, this plant could never be built in the US. But it is being built in a country where the US has

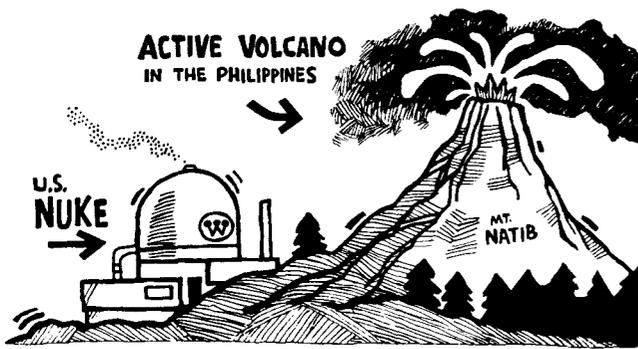
investments of over \$7 billion (with a \$1 investment yielding from \$6 to \$10)(2) and has about 20 military installations, chief of which are Clark Air Force Base and Subic Naval Base.

Since 1972, the Philippine government has ruled by martial law and has abolished civil rights and democratic freedoms, such as free speech, the right to strike and the right of assembly.(3) Over 70,000 political dissenters, by Marcos's own admission, have suffered imprisonment. Amnesty International, the International Commission of Jurists, the US National Council of Churches, and even the US State Department, have identified the Marcos government as repressive, as a consistent and systematic violator of its citizens' human rights.

Since 1972, with the US debacle in Indochina, worldwide and domestic public opinion have become sensitized to overt forms of US intervention in the Third World. Ironically, the Carter administration has increased its military aid to Marcos by 138 percent, from \$31.8 to \$75.5 million.(4) These public monies will be used to pay for the tanks, planes, bombs, howitzers and ammunition that Marcos badly needs to maintain himself in power and enrich his family and friends. At the same time these weapons will be used to brutalize 45 million Filipinos (of which 5 million are Filipino Muslims or Moros waging fierce armed struggle in the southern Philippines) — all in the name of a presumably anti-communist "New Society" blessed by the International Monetary Fund and the transnational corporations. It is in this context that we should appraise the issues and problems presented by the Westinghouse adventure.

Construction of the plant began in 1977. To negotiate and win the contract over its competitor General Electric, Westinghouse is reported to have paid as much as \$40 million to Herminio Disini, an in-law and business associate of Marcos.(5) This kickback, or more euphemistically, "commission fee," is now being investigated by the Department of Justice. It is generally understood that no licence can be granted for reactor export while this investigation into corporate bribery is being conducted.

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STOP NUCLEAR EXPORTS TO THE PHILIPPINES !

Steve Karian/LNS

Immediately after the construction began, about 100 families were driven from their homes. Over 11,000 residents in the vicinity of the plant, mostly poor farmers and fishermen, mounted a protest when they realized that the project would jeopardize their lives. Already their lives have been severely disrupted with the destruction of their farmlands, grazing fields, orchards, fishponds, and other means of livelihood. One of the townspeople wrote recently:

This nuclear plant alarms us because we are already experiencing the effect of the project on our livelihood and on our health. Many of us have no more land to till. The lands where we used to get our food and livelihood from are either bought at low price or confiscated because they are needed by the plant. Before, the fishermen used to fish near the shore. Now, the National Power Corporation has driven the fish away because earth fillings are washed directly into the sea. Parts of the mountains abundant in fruit trees and other crops are already levelled off.

With their homes wrecked and their livelihoods at stake, peasants and workers alike have continued to resist the project despite harassment and arrests. Fifty thousand Filipinos have already risked imprisonment by signing a petition opposing the construction of the plant. Marcos in turn has responded by severely suppressing any organized dissent. One construction worker engaged in organizing workers, Ernest Nazareno, was arrested and brutally tortured by Marcos security forces. In June 1978 he disappeared and is now presumed to have been secretly executed, the first murder victim of the reactor.

Earlier, one Methodist pastor was threatened with arrest merely for asking questions about the possibility of nuclear accidents, airborne pollution, and so forth. Since the people militantly reject the reactor, Marcos has permanently stationed two companies of the Philip-

pine Constabulary to guard the area, thus offering Westinghouse a "favorable investment climate."

In addition to these transnational corporations, the other prime beneficiaries will be two huge US military bases, Clark Field (home of the 13th Air Force) and Subic Naval Base (main repair facility and ordinance depot for the Pacific Seventh Fleet). These two outposts constitute the key strategic springboards for continued US intervention in Asia, Africa and the Middle East. Over 16,000 US troops, excluding civilian personnel and families, are now stationed in the Philippines; they will be serviced, and at the same time endangered, by the nuclear plant.

Various studies have shown that the electricity generated by the reactor will benefit primarily transnational corporations which have factories operating in the adjacent Bataan Export Processing Zone. Inside this Zone, US and other foreign corporations run their tax-free factories employing a Filipino labor force (mostly women) which is prohibited from strikes and union organizing and is paid roughly \$1.00 per day.⁽⁶⁾ (\$6 is considered by the government the average cost of living per day.) In the final analysis, it is the super-exploited Filipino workers and farmers who will pay for the reactor and subsidize the forces that continue to extract the value of their labor power: the US-based conglomerates like Ford, Exxon, Mobil, and smaller corporations.

Given the historic collusion between the state and business in a "free enterprise system," it should come as no surprise that US taxpayers are financing the sale of this reactor, which is now on record as the most expensive reactor ever sold. "It's one reactor for the price of two," commented one Filipino high official in the Marcos cabinet.



Lurie/Michigan Free Press/LNS

Nukes and Native Peoples

Besides the starkly real presence of unacceptable health and safety hazards due to siting, design and the lack of any viable plan for disposal of lethal waste (the vast Pacific has been proposed as the most accessible dumping ground), the Westinghouse reactor is also a genocidal threat to indigenous peoples. In August 1978, the Philippine Energy Ministry and Australia signed an agreement binding Australia to provide a regular supply of unprocessed uranium to the Philippine plant. (Canada is the other prospective supplier.) What this implies is the further eviction of indigenous peoples of Australia from their ancestral lands where uranium is being mined, with the rest of the land contaminated by radioactive debris. This disaster is occurring right now in Native American communities, whose lands account for 25% of U.S. uranium production.

The Uranium Moratorium Movement in Australia has condemned this blatant sacrifice of human lives for profit, exposing how the U.S., with its highly sophisticated enrichment know-how, depends on raw uranium furnished by Australia and other nations to maintain uninterrupted profitable sales of enriched uranium — a necessary ingredient for nuclear plants. □

The most questionable aspect of this deal is the role played by the Export-Import Bank. Supported by people's taxes, the Ex-Im Bank is subsidizing the Westinghouse reactor with \$644 million in loans and guarantees, the largest loan package ever to a developing nation.(7) This financial support, which is half the cost of the reactor, appears to be in violation of the Human Rights Amendment to the Foreign Assistance Act of 1977, which forbids aid to oppressive governments.

With the accelerating impetus of the anti-nuclear movement in the US and Europe, the nuclear industry has now turned to developing or underdeveloped countries to make profits. Of the many reactors operating throughout the world, most have been built or licensed by US transnational corporations.(8)

Domestically, the industry had a shocking *zero net sales* from 1975 to 1978. But in that same period it sold five reactors worth over \$2 billion to Third World clients, most of them under repressive, authoritarian regimes. With public consciousness sensitized and mobilized by the Three Mile Island near-catastrophe and the controversy surrounding it, there are bound to be more cancellations, freezes and shutdowns.

But of course Westinghouse, like other transnational corporations, recognizes neither territorial boundaries nor human rights. How could it be embarrassed by its "standard operating procedure" when the US government itself, which supposedly should set the example, persists in doling out millions of

tax dollars to subsidize reactionary despots in South Korea, Taiwan, Chile, Brazil and other countries where 23 of the Third World's 32 reactors are planned.(9)

Within the wider perspective of political economy, the Westinghouse deal represents a desperate corporate drive to recoup losses incurred in a declining domestic market where sales are paralyzed due to public disapproval. The trick is to dump nuclear technology in the Third World where a ferocious trade war between US, French and German corporations rages.(10)

There is at least one profoundly instructive lesson to be gained from analyzing the Westinghouse-Marcos connection. It exposes in quite undisguised fashion the conjuncture of various socio-economic factors illustrating how nuclear energy as presently controlled by profit-making corporations dovetails with the global planning imposed by such bodies as the US Agency for International Development (AID), World Bank, IMF, etc. on the Third World.

It is a matter of public record that AID and other monetary agencies endorse, sometimes insist on, capital-intensive projects designed to service only foreign corporations with the technical know-how. The "trickle-down effect" will benefit only the local junior partners of these multinationals, a handful of urban-based merchants and bureaucrats. For their part, the technocratic, right-wing elites of the developing societies recognize that the centralized form of nuclear technology affords them powerful mechanisms for controlling the lives of their subjects. What is at stake are national sovereignty and genuine popular democracy. For if Westinghouse will control the installation and repair of the reactor, and the US government licenses its export and use, then the Philippines will be dependent technically, economically and politically on the US. Philippine society will continue to be dominated by a privileged minority of technocrats, businessmen and generals. Other energy sources (like geothermal and water) are available in the Philippines, but they will not yield profit bonanzas for Marcos and his patrons.

In the Philippines 70 percent of the labor force functions largely as landless tenants and subsistence farmers, who will consume only 2.3 percent of the electricity produced. Widespread poverty plagues 99 percent of the people, the inflation rate is 14.5 percent, and unemployment/underemployment totals 40 percent. Eighty percent of Filipino children under the age of six are malnourished. Diseases due to poor water supply and inadequate sanitation cause the highest number of deaths. Confronted with these fundamental problems and immediate needs of the majority, the Marcos regime betrays its real essence as an inhumane, bankrupt, irrational system. With a staggering debt of \$8 billion, it has committed \$1.1 billion for the Westinghouse reactor — a massive drain on national re-

sources — chiefly in order to benefit foreign corporations and the subservient elite, about 1 percent of the population.(11)

Practically all the substantial issues concerning energy being debated today converge in this campaign to halt nuclear export to the Philippines.

What is being targeted here is not just the biological and ecological impact of nuclear technology, but also the function of government and institutions (for example, the role of the Ex-Im Bank in underwriting virtually all reactor exports), corporate bribery, Washington's material and political support for dictatorships, and last but not least the wanton violation of human rights and subversion of the democratic and libertarian aspirations of peoples. In sum, what is at issue is the comparative merit of different social and political systems, contradictory ideologies, and contradictory world-outlooks. These manifold linkages are being explored and publicized by the Campaign for a Nuclear-Free Philippines, a loose coalition, founded in April 1978, of environmental, anti-nuclear, and anti-martial law groups, including Friends of the Earth, Nautilus Alliance, Mobilization for Survival, Friends of the Filipino People, and others.

In July 1979, when Marcos, in deference to heavy international criticism, was forced to postpone the project, an international review board was formed to assess the health and safety impact of the plant. This is the first time in history that nuclear export has been challenged either politically or legally. This campaign to urge NRC denial of an export license to Westinghouse, together with a demand to halt all funds allocated by Ex-Im Bank, is bound to establish a precedent-setting case. If successful, it will mean a defeat for corporate interests and a victory for the people.

As Westinghouse presses the NRC to expedite the granting of a license, the Campaign for a Nuclear-Free Philippines and two environmental groups based in Washington (the Center for Development Policy and the Natural Resources Council) have filed a petition for the federal courts to intervene in the reactor export. On September 28, 1979, the State Department recommended the granting of an export licence to Westinghouse for this project. Immediately, various organizations spearheaded by the Friends of the Filipino People demanded that the NRC hold hearings before making the final decision. So powerful has been the popular response against this project that Marcos himself ordered a halt to the construction, allowing Westinghouse to make "fundamental changes in the design."(12) Marcos and Westinghouse itself are sensitive to public pressure, hence their concession for modifications in design. However, the location still remains the same. And even if honest and conscientious changes are made, would this solve the real and potentially disastrous impact of

this reactor on the lives of millions of Filipinos, as well as 27,300 US citizens living in the vicinity of the plant (at Clark Air Base and Subic Naval Base)?□

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8. See *Business Week*, Dec. 26, 1978, p.54; *Nucleonic Week*, Nov. 24, 1977; Norman Gall, "Nuclear Setbacks," *Forbes* (Nov. 27, 1978), p.104.
9. See *Nuclear News*, August 21, 1978, pp.67-85.
10. For the fierce challenge posed by France's Framatome and West Germany's KWU (both nuclear conglomerates) to U.S. counterparts in Third World countries like Brazil and Iran, see Norman Gall, "Atoms for Brazil, Dangers for All," *The Bulletin of the Atomic Scientists* (June 1976), pp.5-6; and *Business Week*, Nov. 27, 1978, p.44.
11. On the distortion of Philippine socioeconomic development by this reactor, see James Drew, *Brief of Intervenor/Petitioner* (Friends of the Filipino People) Submitted to the U.S. Nuclear Regulatory Commission, Nov. 2, 1979, pp.15-17; and especially the affidavit (included in the brief, pp.21-38) of William L. Cummings, an American who worked for several years on the proposed plant. On the question of why nuclear power is generally inimical to Third World socioeconomic progress, see Bello, Hayes, Zarsky, *op.cit.*, pp.14-29; *Nuclear Export Monitor*, Vol.1, #1 and #2.
12. *Philippine Times*, Nov. 26, 1979.

Mailing Lists and Technophobia

Report from the Boston SftP Computer Group

by Alan Epstein and Mimi Halperin

Nov. 15, 1979

The Boston area micro-computer project grew out of the needs of Science for the People, requests for aid from various other progressive groups, and the experience with micro-computers which several members of the Boston chapter began to acquire during 1977 and early 1978. In the spring of 1978, when it appeared that it would be feasible for SftP to obtain its own very minimal computer system, serious planning began.

The most urgent need is to deal with SftP's own mailing list. This data base of about 2000 names and addresses must be updated and sorted bi-monthly, and mailing labels for magazines, newsletters, renewal forms, etc., must be regularly prepared. Other left groups have similar mailing list problems, one group even having to produce about 800,000 mailing labels a month for various purposes. In addition, a leftist typesetting collective (Zafra Graphics) which typesets *SftP* magazine has become interested in using a micro-computer to serve as an extra text-entering and editing facility, and a local food co-op has asked whether a computer system might help them with inventory problems.

It rapidly became clear that computer solutions of these problems had four common requirements for success:

- **Equipment must be dirt cheap.** Though central processors, the heart of a computer system, are getting cheaper, faster, and more powerful all the time, there is still a problem in obtaining affordable and acceptable printing devices and external information storage devices. It was decided to concentrate on a system involving 3 or 4 ordinary and inexpensive audio tape cassette recorders for storage of the mailing lists, and for the programs themselves. (Handling a very large mailing list, therefore, is not included among our initial goals.) In addition, for the Zafra Graphics project we need to design and build an interface for a papertape punch and reader so that the final output could be fed into their present typesetting equipment.
- **Programs must be easy to run.** Most groups (including SftP) cannot rely on a pool of experienced computer people to

read dense instruction manuals and wade through complicated and sophisticated computer commands when a mailing list must be produced. We neither intend nor need to make programmers out of all people who use the system. Special programs have to be created to interactively direct the uninitiated as they use the computer system. Instructions to users need to be simple and unambiguous, and the purpose of each program should be straightforward.

- **Provision must be made for rapid troubleshooting** whenever problems do arise, and for **regular maintenance** to prevent problems from arising in the first place. Each piece of work for which a micro-computer solution has been requested must be assumed to be central to the well-being of the organization involved. Reliability is therefore important to any proposed system. It is essential that fast and accurate recoveries be made from any breakdown during a program run, and that several copies of mailing lists or whatever be available at all times, ready for direct use by the computer. In particular, we decided to emphasize the value of having all groups use identical equipment and similar programs so that in case of need, interchangeable parts and borrowed programs could be shifted among groups.

- **More people must be trained** in the skills needed to develop and run programs and equipment. The efforts to meet the other requirements will require much more designing, engineering, programming, and building than our small group (effectively half a dozen when we began) can possibly provide. Without trying to turn all activists into computer experts or usurping their valuable time from the main work of each organization, it is still necessary for us to begin a process of computer education for ourselves and for the general members of SftP, as well as for the other groups interested in our work. This goal is also part of the SftP philosophy, which holds that technology and science must be understandable, available, and ultimately responsive to the needs of all people.

These four requirements gradually led to equipment choices and outlines for programs. The Z-80 is a relatively common and easy to use micro-computer for which manufacturers have already designed additional equipment, some of which would be useful for our project. A sorting program (to put mailing labels in zip-code order) and a special purpose editor (to change expiration dates, correct addresses, etc.) were designed and some programming begun during the summer and early fall of 1978.

Since then, major efforts have gone into the educational side of the project. In October 1978, Glenn Wargo began teaching the Z-80 programming course with 4 students, all of whom were in some way connected to SftP. The purpose was to train people to use and program our soon-to-be-acquired Z-80 microcomputer. In December, Alan Epstein began teaching, taking much of the burden of the actual classroom instruction, while Glenn continued to plan and steer the course.

The course started from scratch since the original students had no prior computing experience, and, at least in one case, a technophobic attitude toward computers. The course consisted of classroom lectures, problem solving time, and homework assignments which were reviewed in class. Barden's *The Z-80 Microcomputer Handbook* was used as a text; unfortunately, it was written for experienced programmers, and this caused consternation among the students who were confused by the terminology and quickly grew to dislike it. Plowing through it turned out to be an ordeal, but overall it was a reasonable reference guide.

The use of Glenn's Intel 8080 micro-computer helped immensely in allowing the students to try running their homework programs on a real machine. (The Z-80 and Intel 8080 have a similar enough instruction set to allow this interchangeability.) It is clear that the use of a machine is vital to the course.

As the course came to an end, we reviewed the relevant chapters in Barden, and spent time in "work-topic" groups.

where the students began to work on actual needed software for the Z-80. One group began working on a mailing label verification program, and will be involved later in writing our special-purpose mailing label editor. The other group began designing a translation program for Zafra Graphics.

At the outset it was estimated that it would take approximately 100 hours of work to bring an inexperienced person "up to speed", i.e., to a point where she or he could do useful programming. The students were able, after 50-75 hours, to write elementary programs, and it seems that the 100 hour estimate was correct. All of the students who completed the course did extremely well; in fact, one was hired as a junior programmer mainly on the basis of the experience from the course.

The course was offered for free (the instructors were not paid); materials

were paid for by everyone. It was expected from the outset, however, that once the course was over the participants would donate their newly acquired skills to furthering the efforts of the overall project.

In September 1979, the course was started again by Alan, and five people are currently enrolled. Chris Hydeman, who completed the first course, is assisting the instruction, as is Toby Bloom, another computer group member.

The pace of the course is geared to the speed at which the participants are learning the information; no one is left behind. Questions are encouraged at any time so that no one gets stuck. We also split into smaller groups which meet with the teachers to get more individualized attention. An effort is made to make the learning environment as relaxed as possible. We try to share information about our lives to offset the

traditional isolation which most of us have experienced in our past learning situations.

Evaluations are also part of the process: after every few weeks, the participants are asked what they thought was constructive and helpful about the teaching, method, teacher, and materials; and then, what they would like to see changed. This has allowed useful feedback.

Concurrently, Glenn Wargo and George Smolenski are teaching a hardware course, dealing with electronics and machine repair. The classes consist of interactive instruction as well as hands-on experience with electronic components.

Nothing has been planned for the next round, but hopefully in the future we will be able to expand our classes and more widely distribute this information. □

LETTERS

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those women who prefer a woman gynecologist would not back a move to exclude men from gynecology, not to speak of the women who tell me (E.B.) they prefer male gynecologists.

We understand and reject the social conditioning that leads to this latter attitude, but our point is this: to effect change we must link an understanding of where people are at now to our understanding of the radical changes that are needed to create a really human society. Failing to grasp the present reality condemns you to isolation as surely as haziness on the need for radical change condemns you to liberal reformism.

We hope and trust the author and the women involved, who describe themselves as "committed to the overthrow of sexism, racism, capitalism, and imperialism," will accept this critique in the spirit offered, as trying to add clarity on how best to achieve this goal which we share with them.

Elizabeth B. (Gynecology Resident)
Al C.

Author's response to letter of Elizabeth B. and Al C.:

The letter from Elizabeth B. (gyn resident) and Al C. is a good example of the kind of response that the third protocol of the Pelvic Teaching Program has elicited from medical students and physicians. Rather than addressing each one

of the issues they raise (the question of the feminists' awareness of other political groups' experiences, both currently and historically; the "sectarian" issue; the "male gynecologist" question, to name a few), I will concentrate on two which have been raised by others most often: first, their misapprehension of the concept of "self-help"; second, their misunderstanding of the actual class position and hierarchical status of both physicians and medical students in the medical system.

By referring to "medical self-help" and identifying this as a process like "brushing your teeth," or a "substitute for complete examinations," they are not defining self-help as explicated in my article and practiced by the women's self-help movement. They are confusing self-help with self-care. Self-help does not mean self-vaginal or self-breast examination, nor does it mean simply replacing physicians (or dentists) with lay women; rather, self-help means empowering women through sharing knowledge and skills, demystifying and demedicalizing health care by reclaiming areas of health which have been defined as medical problems, looking at the politics of the medical system as a whole, and challenging this system.

Self-help is a broader concept than the self-examinations described by Elizabeth B. and Al C. It provides a mechanism for demystification of women's own bodies in groups with other women, not only encouraging women to be comfort-

able with their own bodies and to learn about their reproductive and sexual anatomies, but also breaking down barriers keeping women apart from each other. In addition, this process serves to demystify the practitioner's role in a routine gynecological examination for a healthy woman, as well as to challenge the dyadic relationship between a woman and a gynecologist imposed by current medical practice.

*Self-care, or in Elizabeth B. and Al C.'s terminology, "medical self-help", such as brushing one's teeth, is the transfer of skills from the practitioner to the layperson; in our society, for example, some dentists teach their "patients" how to brush (and to floss!) properly; some physicians teach their "patients" how to examine their breasts and/or genitalia. Two responsible articles have been written about the difference between self-help and self-care. For further information, see Sheryl Ruzek's book, *The Women's Health Movement* (Praeger Publishers, 1978) and Norma Swenson's review of *Self-Care: Lay Initiatives in Health in Social Science and Medicine* (May 1978).*

Beginning with their analogy, "Its like going into a factory with a full blown program for socialism and demanding that the union bureaucracy and the rank and file subscribe to it completely or you'll not work with them," the authors fall into hopeless confusion. Here, it sounds like they equate the position of medical students with union members

(bureaucracy or rank and file). Certainly in the medical hierarchy, medical students rank higher than factory workers do in the industrial hierarchy! (In addition, I would hasten to add that their class affiliation (middle to upper), race (predominately white), and sex composition (primarily male) are different.) The authors move on to claim that "it is elitist for a knowledgeable few, cut off from the bulk of the workers, to feel they can create a program for the field, and to think they can effect it without building broad support is a type of vanguardism." To whom are the authors referring? Do they claim that the feminists are the elitist, knowledgeable vanguards? Or the physicians? Or the physicians and other medical personnel? In any responsible attempt to critique the existing structures and to institute reformist or radical changes, it is crucial to distinguish physicians (and future physicians, for that matter) from other members of the medical hierarchy and certainly to distinguish them from consumers of care. Their social status and political and economic power are unequal.

The feminists devised their third protocol after having taught pelvic examinations to medical students according to two previous protocols and in response to their experiences and dialogues with students and medical school officials. In point of fact, the third protocol was aimed at directly challenging the elitism and the power of physicians as providers of care, as definers of the role of medicine in society, and in relationship to the majority of employees in the medical system by teaching medical students rudimentary skills in a politically responsible way — alongside of the consumers of care and nonphysician medical workers. By raising these issues in their third protocol, the feminists hoped, at the very least, to initiate a dialogue with representatives of the medical education establishment and/or medical students about these issues in an explicit way; and, at best, to create an arena of discourse in which to debate them during teaching sessions.

Susan Bell

Dear SftP,

It is good to see people summing up their political activities like the article on political gynecology in the Sept./Oct. issue. But there is a thread which has run through several articles that leads these

sum-ups in the wrong direction. This common thread is a misunderstanding of the nature of reforms.

The author of "Political Gynecology" sets up a dichotomy between "interim and long-range reforms" and between "positive reforms and cooptations." This springs from a healthy desire to avoid the reformist trap, the treadmill of one reform after another which leaves our oppressive system intact. No matter where it comes from, however, this dichotomy does not solve the problem.

The key is not so much *which* reform to fight for, but *how* to fight for a reform. For example, if workers win a pay increase, their struggle may be cooled out. On the other hand, they may increase their unity, their class consciousness and their will to fight the system. These different results come from how the struggle was waged. The role of radical activists is to connect the struggle for a particular demand with larger struggles and, finally, with the need for revolution. For their part, the ruling class and its agents will try to isolate every demand, turn every reform against the people, and take back every concession they have made. So it's just not pos-

sible to string together a bunch of reforms and change the nature of the system.

Of course, some reforms offer greater possibilities for mobilizing, uniting and educating people. The women of the Pelvic Teaching Program were probably right to abandon their teaching because the program was geared to a few medical students and could not mobilize broadly among women. In summing up, it would have been helpful to have answered these questions as well:

How many women were won to the women's health movement?

How many men came to see the need for solidarity with women's struggles?

What clarity was gained in identifying the main targets of the women's health movement? What connections were made between the oppressive aspects of health care and the overall struggle?

How well was unity built with other struggles and between organizations? Were issues which affect poor and minority women (like forced sterilization) taken up?

How many people were radicalized?

Yours,
Mike T.

In Memory of Bill Sampson

On Saturday, November 3, several carloads of Ku Klux Klansmen gunned down five members of the Communist Workers Party as they were preparing for a march in Greensboro, North Carolina. Among the dead was Bill Sampson, whom some of you may remember as an active member of Science for the People. The son of a school teacher and a research chemist, he entered Harvard Divinity School after graduating from Augustana College, where he had been active in student rights and the antiwar movement. At Harvard, he fought against academic racism and the university's investments in South Africa. An active member of SFTP, both in its internal politics and its activity groups, he was particularly concerned with health care. He entered the medical school of the University of Virginia in 1975, feeling that he could be most effective as a doctor. Some of his patients were brown lung victims from textile mills. He left medical school in 1977. He could do more as a union organizer, he believed, than as a physician. He moved to Greensboro, married, and went to work in Cone Mills as a communist organizer. His organization recently had shifted its emphasis from the mills to the Ku Klux Klan. The "Death of the Klan" rally they organized that Saturday resulted in their deaths instead.

Racism has reared its ugly head not only in the South but in northern cities as well. We must work together not only to defeat the purposes of these groups but the system that fosters them. If we can be successful in that, we will have created the most lasting memorial for Bill Sampson.

—Elizabeth Allen

FERTILITY CONSCIOUSNESS

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Ovulation Method. In fact, the Catholic natural family planning movement is exploiting the reactions of Third World people, who oppose coercive population control programs, by offering an effective alternative. Unlike other natural methods, which require thermometers and calculations, the Billings Ovulation Method is a technique that can be easily exported throughout the Third World by means of the Church's missionary structure. Also, the missionaries gain political influence and spread their moral teachings among the people.

Although the natural family planning hierarchy supports population control for the Third World, it exhorts white higher class populations to increase their birth rates. A recent publication directs natural birth control users as follows:

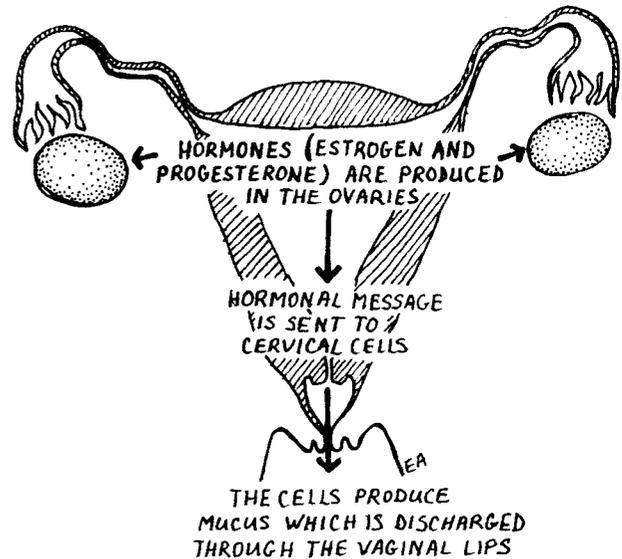
Among the contraceptive populations of the West, I believe that the message ought to be "get having babies! — you are going to ruin your country and often your personal future, by regarding, say, two as quite enough, when you have no great excuse."(6)



Lynn Roberson

Alternatives to Catholic-controlled Programs

A variety of non-Catholic groups offer natural birth control programs. Some have New Age religious or spiritual perspectives which reinforce stereotyped roles for women and oppose other types of birth control and abortion. Other programs present natural methods simply as birth control that is free of physical side effects and can enhance communication between partners. Recently, some corporations are developing programs to cash in on newly available federal funding.



Ellen Armstrong

Other groups teaching natural birth control have adopted the terminology used by Catholics, often without examining the assumptions inherent in the use of these terms. Since the Ovulation Method was developed to promote Catholic values, it is steeped in restrictive assumptions about sexuality, morality and women. For example, Roman Catholic morals consider penile/vaginal intercourse with ejaculation directly into the vagina as the only approved form of sexual activity. "Abstinence" therefore means not having intercourse and also not having sexual contact of any kind. For people whose sexual expression includes activities other than penile/vaginal intercourse, the meaning of the word *abstinence* perpetuates sexist assumptions that penile/vaginal penetration is the most desirable sexual activity and anything else must be inferior. As women talk more about sexual experiences and feelings, they more clearly understand the oppressive nature of these assumptions. In an analysis of women's descriptions of ways they do and do not experience sexual satisfaction, Shere Hite reports:

Insisting that women should have orgasms during intercourse, from intercourse, is to force women to adapt their bodies to inadequate stimulation and the difficulty of doing this and the frequent failure that is built into the attempt breeds (sic) recurring feelings of insecurity and anger Sex is defined as a certain pattern — foreplay, penetration, intercourse, and ejaculation — indeed, intercourse *is* the pattern This pattern is what oppresses women.(7)

The Ovulation Method Teachers Association (OMTA) is an organization formed by non-Catholic teachers of the Ovulation Method to coordinate and distribute information about this Method. OMTA is a positive alternative to the natural family planning programs. The organization publishes a newsletter which provides a forum for sharing information, concerns and experiences, reviews published books and articles, and updates information and statistics about the Ovulation Method. In addition, OMTA is developing a rigorous, responsible, nonmoralistic set of criteria for teacher training and certification, and offers referrals for Ovulation Method instruction and followup in the U.S.A.(8)

The Ovulation Method — A Practical Explanation

To use the Ovulation Method for birth control a woman keeps a daily record of any sensation of wetness or lubrication at her vulva and notes the characteristics of any vaginal discharge present on the external vaginal lips. She learns how to interpret the significance of different kinds of discharge, according to the "rules" of the method. With this information and an understanding of the menstrual cycle, a woman can determine each day whether she is potentially fertile or infertile. To avoid pregnancy, a heterosexual woman who is using this information for contraception simply avoids penile/vaginal contact on all days of potential fertility.

The rules for determining potential fertility are based on biological information about the survival time of an egg cell after ovulation and the survival time of sperm cells in a woman's reproductive tract. There is only one time in each cycle when an egg is released (or two eggs in the case of non-identical twins). Egg survival is no longer than 12-24 hours. Without favorable cervical mucus, sperm cannot travel through the cervix, and die within a matter of hours. With favorable cervical mucus sperm have been known to survive in a woman's reproductive tract and fertilize an egg up to five days after intercourse.

The Ovulation Method provides a way to recognize the *approach* of ovulation. The cells lining the cervix respond to ovarian hormone changes by secreting different types of mucus. As an egg is maturing, the ovary produces increasing amounts of estrogen and the consistency of the cervical mucus changes, producing a wetter and more lubricative vaginal discharge. This is a sign that activity is occurring which could lead to ovulation. Estrogen levels drop just before ovulation and progesterone starts to rise at about the time of ovulation, resulting in a noticeable change in the mucus. This change, which is characteristic for each individual woman, signals the approximate day of ovulation.

Very simplistically, estrogen dominates the preovulatory part of the menstrual cycle and progesterone the postovulatory phase. Although there is always some mixture of mucus types, estrogen dominant mucus is necessary for fertility. Among other functions, this type of mucus nourishes and transports sperm and protects them from vaginal acidity, which is lethal to sperm. Mucus that is fluid enough to flow from the cervix to the external vaginal lips may contain enough estrogen dominant mucus to support sperm life. Thus, checking for the presence of mucus that has flowed out of the vaginal opening is an accurate gauge of hormonal activity. All days of external mucus before ovulation plus an interval following it are presumed to be potentially fertile.

A woman learns to recognize her mucus pattern over the course of one or more cycles. She describes her mucus in her own words, records the description each day, and applies the rules to determine whether she might be fertile on that day. Mucus characteristics vary quite a bit from woman to woman, so that it is difficult or impossible for many women to learn adequately from the profusion of books attempting to teach natural birth control techniques. The most effective teachers are women who themselves practice mucus observation and have learned how to share their knowledge responsibly.(9)

Studies have shown that the efficacy of the Ovulation Method compares favorably to other highly effective birth control methods (condom and foam, diaphragm and cream or jelly, IUD, pills, sterilization, and abortion).(10) When assessing efficacy of any birth control method, the fact that different measures of efficacy are used makes it difficult to compare some studies.

Threat to Birth Control Establishment

As the health risks, pregnancy rates, and political implications of chemicals and mechanical birth control devices become more widely known and understood, many women are becoming interested in methods that do not involve drugs or devices. Widespread practice of effective birth control through knowledge of our own bodies threatens some of the profits reaped by drug companies, doctors, and medical facilities. In addition, it challenges the belief that doctors must "take care of" women's reproductive capacity.

In response to these threats, many doctors and family planning programs refuse to inform themselves about the Ovulation Method. They actively discourage women from learning about this or other natural methods. They try to intimidate women who already use natural birth control, by maintaining that unwanted pregnancy may occur if they do not switch to a different kind of birth control.

Issues to Consider in Choosing a Group

1. Who is doing the teaching? (a woman with experience herself? a male-female couple? a medical person? a nun or priest?) Where did the teacher learn how to teach the method?

2. What is the format? (individual sessions, lecture classes, or more participatory classes or groups? Is there more than one meeting?)

3. Is there an option to learn in an all-women group? If all classes are open to men, is the orientation toward monogamous heterosexual couples? If not, what efforts are made to insure support for other sexual lifestyles?

4. Which natural method is offered? (Ovulation Method or sympto-thermal?) If sympto-thermal, does it include any calendar rhythm calculations? (calendar rhythm does not work)

5. What support is available during the learning process, especially for the first few cycles? What follow-up arrangements are there after that time?

6. Where does the registration fee go? (are you unwittingly supporting a cause you would find offensive?) Is the teacher self-employed? Is there a sponsoring

organization? Is the program receiving any government or other funding?

7. What is the teacher's position on other methods of birth control? Will she refer to a facility that provides a full range of birth control options? Is she knowledgeable about positive as well as negative aspects of other birth control methods? Does she feel that natural methods are "the best" or "the only acceptable" options?

8. What is the teacher's position on abortion? Does she support women's right to choose abortion? Would she refer you to an appropriate facility if you became pregnant and wanted information about getting an abortion?

9. What is the sponsoring organization's position on birth control and abortion (repeat questions 7 and 8)? Some teachers try to disguise or downplay their connection with anti-abortion, anti-contraception organizations, especially when talking to feminists. If you do not get straightforward answers to questions 6-9, be suspicious. If you hear the term 'pro-life' used, remember that this indicates an anti-woman, anti-abortion ideology.

Mechanization of Ovulation Method: Unnecessary and Likely Ineffective

Projects are also underway to coopt the Ovulation Method by developing machines and devices which measure changes in cervical mucus at times of potential fertility. Some of these products are designed to require frequent visits to a doctor's office, while others are being developed for purchase and use in the home. Newspapers and magazines have reported that these new technologies, when available, will revolutionize the birth control field by providing effective birth control without side effects. This ignores the fact that the Ovulation Method, scientifically based, highly effective, used successfully around the world, is available *now*, without the development, rental, or sale of any devices. In fact, many misinformed articles continue to appear, portraying natural birth control as difficult to learn, not very effective, and not suitable for responsible women.

It is unlikely that any device to measure mucus changes will increase the effectiveness of the Ovulation Method in preventing pregnancy. In fact, there are reasons to predict the opposite. No machine can take into account the wide range or variation from woman to woman; in contrast, each woman making her own mucus observations can concentrate on her own individual cycle. The rules of the Ovulation Method allow for special circumstances and unpredictability from one cycle to the next.(11) In addition, a mechanical device is

subject to errors in manufacture as well as operational failure during use. But mechanical devices can be used to generate profits and discourage women from becoming autonomous in controlling our reproduction.

We cannot emphasize enough that the use of mechanical devices to take quantitative measurements is unnecessary for birth control. It is neither mysterious nor difficult for the vast majority of women to become aware of their own mucus changes and to recognize ovulation with the same accuracy as sophisticated laboratory measurements of hormone levels.

Fertility Consciousness/Woman Controlled Natural Birth Control

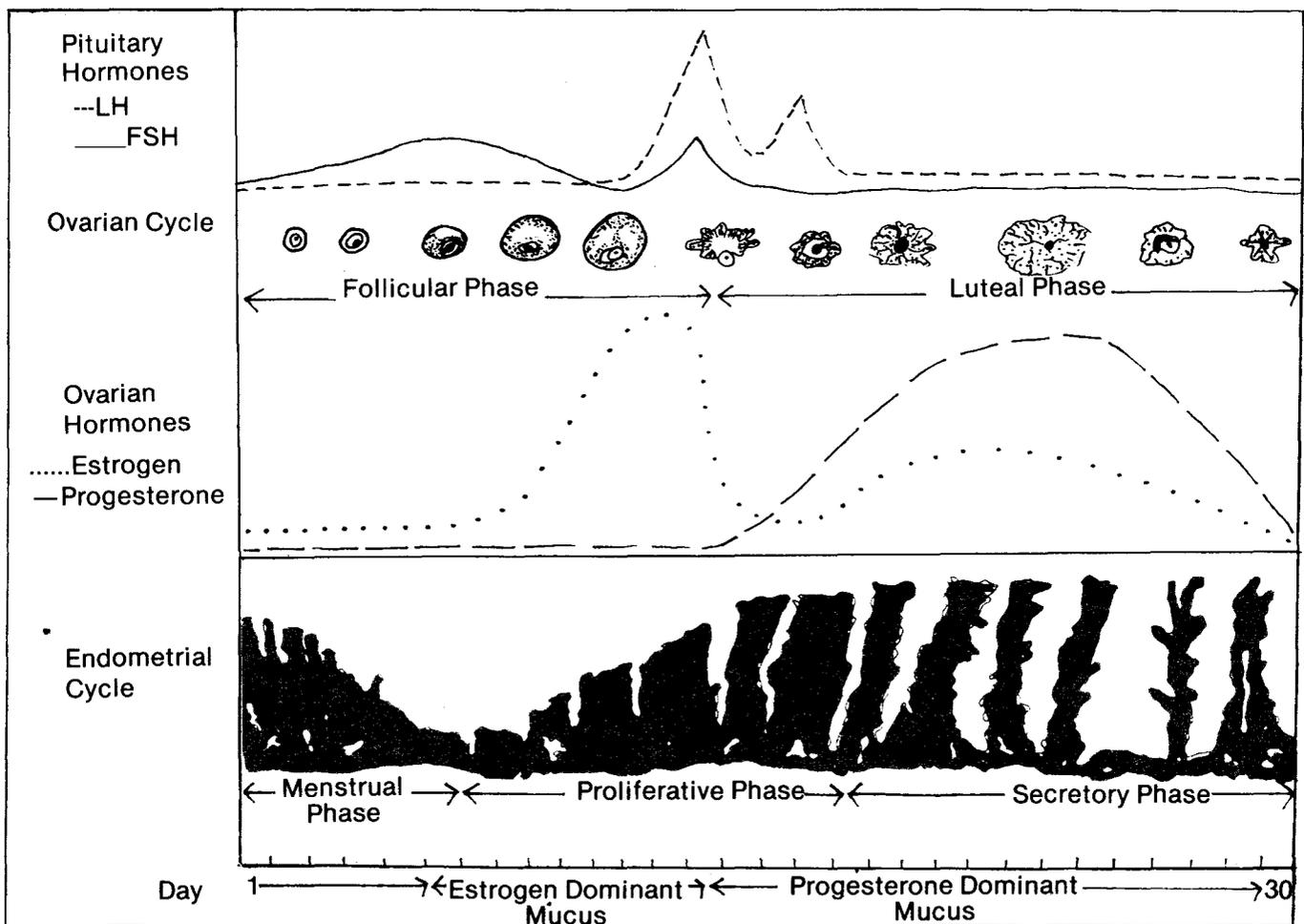
Birth control methods have the potential for allowing women to control our reproductive lives. These methods can also be used as a tool of political and social repression. Many experimental and potentially dangerous birth control methods have been widely spread throughout the world in a coercive manner for the purposes of population control. Women of color are among the special targets. Many poor and Third World women are injected with Depo-provera or sterilized without their understanding or consent. Birth control methods are promoted without giving full explanations of risks, without giving adequate information about and access to the full range of methods to choose from, and without increasing a woman's knowledge of her own body.

Keeping women ignorant about our bodies is another way to control women, decreasing our ability to make choices, creating dependence on the medical establishment, and medicalizing our reproductive function. This can be countered by learning to examine and understand our own bodies; learning that there is a range of variation rather than one standard norm; validating our experiences by sharing them; exploring what we all have in common as women; and formulating new questions to address. We call this process self-help. Self-help challenges the existing power of the medical establishment over women's lives. As we know more, we can make stronger demands for changes in the medical system and reclaim control of women's health care. Learning about mucus observation and the Ovulation Method in a self-help group is an empowering experience that goes beyond providing tools for fertility consciousness and for woman controlled birth control.

In fertility consciousness self-help groups we share information about female sexual and reproductive organs, including cervical self-examination, as well as

detailed information about the Ovulation Method. Groups of 10-12 women meet with two experienced and trained facilitators for five weekly, 3-hour sessions. Most women will have the opportunity to observe a full cycle of mucus changes during that time. We also hold follow-up sessions once a month which are open to all women who have completed a group.

Everyone is encouraged to be an active participant, sharing her experiences and reporting on her mucus observations from week to week. Rather than a teacher-to-class dynamic, women support each other in developing confidence in mucus observations and taking responsibility for our reproductive lives. The group process creates a setting in which women can explore issues uncovered by learning this information. For example, many women have been taught that their vaginal discharges are abnormal or unclear; it can be both liberating and politicizing to discover that these discharges are a universal and informative sign of healthy body functioning and to think about why this kind of information has been withheld from us.



Denise Minter

Beyond Birth Control

Our goal is to provide both information and a process that women can choose to use in a variety of ways. Relying on a natural birth control method raises issues about responsibility for contraception, conflicting feelings about becoming pregnant, communication with male sexual partners, applying "rules" to sexual behavior, and who it is that defines sexual expression in relationships. Lesbian and celibate women, as well as heterosexually active women who use non-natural birth control, have found it relevant and empowering to understand the changes they experience throughout their menstrual cycles. Women in menopause self-help groups have also been excited to gain access to this way of monitoring estrogen levels in their bodies.



Lynn Roberson

Many women are interested in combining fertility consciousness with the use of barrier methods — condoms, foam, diaphragm, cervical cap — and we discuss this as an option. Since the Billings and other Ovulation Method researchers condemn barrier methods as immoral, they have not studied these combinations of methods. As facilitators we make it clear that there is a possibility of higher pregnancy rates for women using barrier methods during fertile times. Women share experiences in learning whether they can distinguish

mucus in the presence of spermicides. We talk about the significance of losing a day's observations after the use of jellies or spermicides at various times in the cycle. Women can then take responsibility for making informed decisions, knowing the scientific basis of the Ovulation Method and the philosophy that motivated and determined the research process.

In summary, when natural birth control information is presented along with a restrictive set of values about women's biological functions and roles in society and the family, natural birth control reinforces women's oppression. When this information is presented as a wholesome form of birth control without challenging the oppressive assumptions which shaped the development of these methods, women gain an important birth control option but the Catholic assumptions continue to be perpetuated. When this information is used as a self-help tool, it expands not only the birth control choices available to women but also our abilities to demedicalize and control our own bodies and our reproductive lives. □

REFERENCES

1. Rice, Frank J., Lanctot, Claude, and Garcia-Devesa, Consuelo. "Effectiveness of the Sympto-thermal Method of Natural Family Planning: an International Study." In press.
 2. Much of the information in this section was gathered when two members of our group attended International Institute V of the Billings Ovulation Method in Los Angeles in January 1979, as well as from reading and discussing written material.
 3. Billings, E.I. and Billings, J.J. "Symptoms and Hormonal Changes Accompanying Ovulation." *Lancet*, Feb. 5, 1972.
 4. Hume, Kevin. "The Ovulation Method of Natural Family Planning." January 1977, p. 2.
 5. Billings, John J. "Overview of the Ovulation Method — 1977." Third Annual Institute on the Ovulation Method.
 6. Lawler, Ronald. "An Address to the Clergy." *Bulletin of the Natural Family Planning Council of Victoria*, Vol. 6, No. 1, March 1979, p. 7.
 7. Hite, Shere. *The Hite Report*. Macmillan, New York, 1976, p. 291.
 8. For more information about OMTA, write to them at: P.O. Box 14511, Portland, Oregon 97214.
 9. For more information about the Ovulation Method, see Denise Guren and Nealy Gillette's book, *The Ovulation Method: Cycles of Fertility*. June 1977. This can be ordered from Denise Guren, 4760 Aldrich Road, Bellingham, Washington 98225. Cost is \$3.20 postpaid. This is the only accurate, clearly written, responsible, nonmoralistic book available.
 10. A number of factors influence effectiveness rates, including the way the method is taught or provided, the motivation of people using the method, and the way that pregnancies that occur during the study are categorized and reported. Some studies of the ovulation method use women teachers, while others use couples, men, or even correspondence courses. A study by Rice, Lanctot, and Garcia-Devesa found "a 3½ times higher pregnancy rate for those who have not reached their desired family size over those who equal or exceed their desired family size." (Rice, Lanctot, and Garcia-Devesa, *op. cit.*)
- It is also important to distinguish between different factors resulting in pregnancies. Pregnancies can result from failure of the method; that is, women who understand and apply the method correctly occasionally become pregnant. (This is true for every birth con-

trol method.) Teaching-related pregnancies result when women do not understand the method and therefore apply it incorrectly. Total pregnancy rates also include women who correctly identify a day of potential fertility and choose not to follow the rule of avoiding penile/vaginal contact. Some studies distinguish between these factors, while others do not. Recent World Health Organization studies in five countries demonstrated a 98.5% method effectiveness rate, yet concluded that the Ovulation Method was relatively ineffective because overall pregnancy rates ranged from 10.4 to 33.7 pregnancies per 100 woman years. WHO reported that 97% of women were able to interpret their mucus pattern correctly, and high pregnancy rates were due to "couples knowingly taking a chance during the fertile phase." (World Health Organization. Special Programme of Research, Development and Research Training in Human Reproduction: Seventh Annual Report, Geneva, Nov. 1978. Reprinted in *Family Planning Perspectives*, Vol. 11, No. 1, Jan./Feb 1979, p. 41.) In our opinion this shows that the method is highly effective and that motivation is a critical factor.

11. Unfortunately, space does not permit full discussion of this point. For discussion of the rules, see Guran and Gillette, *op. cit.*

ADDITIONAL RESOURCES

This is not a complete list of references. Rather, it concentrates on some basic studies in the development and testing of the Ovulation Method, some sources of scientific information, and good sources of Ovulation Method information (see especially Nos. 10 and 11). There are many books available on "natural birth control" methods and programs of different sorts; we do not recommend any of these books not listed below. Please contact Fertility Consciousness Group, Women's Community Health Center, 639 Massachusetts Ave. #210, Cambridge, MA 02139, for more information.

1. E.I. Billings, J.J. Billings. "Symptoms & Hormonal Changes Accompanying Ovulation." *The Lancet*, Feb. 5, 1972.

The initial publication on the correlation of cervical mucus observations by 22 lay women ("housewives") and hormonal changes. The study demonstrates that "normal" women can predict and identify ovulation by noting the pattern of vaginal mucus symptoms, without recourse to temperature measurement or more specialized tests.

2. Hanna Klaus M.D. et al. "Use Effectiveness and Analysis of Satisfaction levels with the Billings Ovulation Method: Two Year Pilot Study." *Fertility and Sterility*, Vol. 28, No. 10, Oct. 1977.

Joan Goebel M.D., Ralph E. Woods M.D., Mary Castles PhD, George Zimny PhD. A 2 yr. study of 135 women using Billings Ovulation Method. There were 1381 exposure cycles during 1st year and 580 during 2nd year. Total conception rates were 1.303 per 100 woman months for 1st year and 1.8961 per 100 woman months for 2nd year. Biologic failure (method failure) are 0.072 per 100 woman months, the first year and 0.517 per 100 months for 2nd year. Continuation rate 51.8%. Compares use effectiveness of other contraceptives to Ovulation Method:

Contraceptive	Use-Effectiveness	
	pregnancies 100 woman mo.	duration of use (mo)
Oral	3.9	6
Intrauterine device	2.36	6
Diaphragm & jelly	1.9-2.2	12
Ovulation Method		
Biologic Failure	0.072	12
	0.517	24
Personal Failure	1.231	12
	1.379	24
Total	1.303	12
	1.896	24

3. M.C. Weissmann, L. Foliaki, E.I. Billings, J.J. Billings. "A Trial of the Ovulation Method of Family Planning in Tonga." *The Lancet* Oct. 14, 1972.

282 women using Billings Ovulation Method for 250.3 mo. total (average approx. 8.8 mo. each woman). Of the 81 pregnancies occurring, 28 were due to couples not using the method because they wanted more children. 50 women ignored indications of possible fertility (user failure) and 2 pregnancies were from teaching failures and 1 from method failure.

4. Billings & Billings. "Teaching the Safe Period Based on the Mucus Symptom." *Linacre Quarterly*, Vol. 41, No. 1, Feb. 1974.

Another review of the Billings Ovulation Method, including teaching experiences and philosophy of the Billings.

5. Don P. Wolf PhD, Luis Blasco M.D., Mohammad A. Khan PhD, Mitchell Litt D. Eng. Sc. "Human Cervical Mucus II. Changes in Viscoelasticity During the Ovulatory Menstrual Cycle." *Fertility and Sterility*, Vol. 28, #1, Jan. 1977.

Correlates high mucus viscosity with favorable sperm penetrability and with the ovulatory phase of the menstrual cycle.

6. J.F.P. Kerin, C.D. Matthews, J.M. Svigos and M. Makin in *Journal of Reproduction and Fertility* #46, 1976. pp. 499-500.

Cervical mucus is most favorable to the penetration of spermatozoa on the day preceding and the day of the LH surge, and thereafter decreases rapidly.

7. John Marshall "Cervical Mucus and Basal Body Temperature Method of Regulating Births." *The Lancet*, Aug. 7, 1976.

84 women used the method for 1195 cycles. There were 22 unplanned pregnancies per 100 woman cycles. No distinction is made between method failure and user failure.

8. World Health Organization, Special Programme of Research, Development and Research Training in Human Reproduction: Seventh Annual Report, Geneva Nov. 1978. Reprinted in *Family Planning Perspectives*, Vol. 2, No. 1, Jan./Feb. 1979.

890 women contributed 2685 cycles resulting in 19.4 pregnancies per 100 woman years use effectiveness. 98.5% method effectiveness.

9. Frank J. Rice, Claude Lanctot, Consuelo Garcia-Devesa. "Effectiveness of the Sympto-thermal Method of Natural Family Planning: An International Study."

Sympto-thermal method used Basal Body Temperature, mucus and calendar calculations. 1022 couples contributed 21,736 cycles and reported 128 unplanned pregnancies, a rate of 7.47 conceptions per 100 woman years. Only 16 pregnancies occurred when the couples were following instructions, giving a theoretical effectiveness of 0.93 pregnancies per 100 woman years using the Pearl formula. Couples trying to prevent any pregnancies had a failure rate of 4.13%; those only delaying a pregnancy had a failure rate of 14.83%. The Sympto-thermal method used alone had a failure rate of 6.24% while use of contraceptive devices with the Sympto-thermal method had a failure rate of 10.33%. Method failure using Pearl index was 0.75% over 24 months for couples using STM only. User failure 5.49%. STM with barrier methods during a portion of the fertile period: method failure 1.36%; user failure 8.97%.

10. Guren, Denise, and Gillette, Nealy. *The Ovulation Method: Cycles of Fertility*. Self-published. June, 1977. Available in bookstores or from Denise Guren, 4760 Aldrich Road, Bellingham, Washington 98225. Cost \$3.20 postpaid. Clear, concise, without religious orientation; best presentation of the Ovulation Method in print.

11. *Ovulation Method Newsletter*. Available from Ovulation Method Teachers Association, P.O. Box 14511, Portland, Oregon 97214. An excellent newsletter, including new information about Ovulation Method, program reports, reviews of books and articles.

12. World Health Organization. *Cervical Mucus in Human Reproduction*. Copenhagen: Scriptor, 1973. Available from Human Reproduction Unit, WHO, 1211 Geneva 27, Switzerland. Scientific and medical information on the physiology of mucus and its relation to fertility.

The two current opinions presented here express divergent views from the Disarmament/Energy Group of Boston Science for the People. It is hoped they will provoke a debate on the need and potential for a disarmament movement today and on the choice of strategy and focus for such a movement.

The Arms Race

by Scott Thacher

Until recently, the United States has held a commanding lead over the USSR in the variety and number of strategic weapons. The U.S. still leads in the number of warheads; 11,500+ for the U.S. and 3,900+ for the USSR by a recent estimate. However, the USSR carries twice as many megatons on its land-based missiles, and may be approaching the U.S. in such areas as the accuracy of its missiles and thus their ability to make a direct hit on U.S. missile silos. U.S. developments, such as the highly accurate MX mobile missile, or even an effective anti-submarine warfare system, might even tempt the U.S. to consider a first strike during a time of crisis.

Now more than ever is the time for real disarmament. We hear instead a call for increased military spending and a demonstration of American "national will" abroad. Such a propaganda campaign has preceded major U.S. arms buildups since World War II. Our new armaments, such as the cruise missile or the MX, are to be developed as bargaining chips for future disarmament negotiations. It is ironic that the U.S. has never bargained away any of those chips. For example, in 1972 as part of Salt I, it did not dismantle its hundreds of MIRVs (Multiple Independently-Targeted Re-entry Vehicles) while the Soviet Union still had few or none. Instead the arms race has continued to new levels of danger. If and when Salt II is ratified, the nuclear balance of terror will be less stable than a decade ago because of the first strike capability which each side perceives it has. No longer are ballistic missiles weapons of deterrence based on their ability to destroy major population centers. With technical improvements on both sides they are becoming weapons of attack.

The use of highly accurate tactical nuclear weapons is proposed by the U.S. to deal with conventional (non-nuclear) arms in Europe. It is logical that Western Europe fears the buildup by the Soviet Union of conventional arms in the East, although it should be noted that a conventional army is far stronger in defense than in attack. The Pershing missile, carrying nuclear warheads and deployed in Germany and two other NATO countries, would do nothing but lead to an utterly devastating exchange for most of the continent. But this level of strategic thinking is the rule in the absence of significant opposition in Europe and the U.S.

Science for the People can help expose the role the U.S. has played, beginning with the bombs dropped on Japan, in escalating the arms race. It can show how opponents of escalation, especially scientists, were repressed or coopted. It can speak to the human cost of the arms race today as seen in arms exports to poor countries, not to mention the over \$400 billion to be spent on arms this year. About half of the scientists and engineers in the world, and in the U.S., work on arms. Projects to convert the military industry to peacetime use may provide help for problems of transportation, housing, or education. Such projects will bring home to many the pervasive economic control of military contractors, which include practically every major U.S. corporation. SftP must not forget that real disarmament, not just the illusion of arms control, is a radical notion not compatible with today's political and economic system.□

Why Disarmament Now?

by Mike Teel

Disarmament is a growing and urgent international demand. But the voice of the disarmament movement is still weak. Increasing international tension, the SALT debate, and the spreading anti-nuke consciousness are giving it added strength and immediacy. Should Science for the People take part in the disarmament movement? Is disarmament just a utopian demand, doomed to the same futility as the previous attempts after the two world wars?

World War

The main argument for organizing around the disarmament issue now hinges on the increasing likelihood of world war. Disarmament is becoming a matter of survival. When the US was clearly the dominant military power in the world, nuclear war seemed unthinkable. But the Indochina wars weakened the U.S., and its superiority is being challenged by the other superpower, the Soviet Union.

We are faced with a situation parallel to what existed before each of the two world wars. Both world wars were part of a redivision of the world, forcibly creating new spheres of influence. The world's territory had been monopolized, so newer expanding powers (like Germany) had to grab from the declining powers (like England).(1) The decline of U.S. imperialism and expansion of the Soviet Union creates the same threatening situation. The dynamics leading to world war are again in motion.

Neither superpower actually wants war, but war is the historically inevitable consequence of their rivalry over spheres of influence. War could break out in any of a number of areas, but a war over Europe is most likely to escalate to a Third World War. That is where the superpowers have concentrated their forces. U.S. corporations have invested heavily in Europe and reap large profits. If the Soviet Union is to overtake the U.S. and vastly expand its spheres of influence, it needs the mighty industrial economies of Western Europe. The Middle East and other areas may have strategic importance, but they do not generate the wealth of the industrialized Common Market. (However, with the present standoff in Europe, the USSR is currently undertaking a large flanking movement in Africa and Asia to control key materials and trade.)

This focus on Europe is important because the U.S. has pledged to defend Western Europe with nuclear weapons. In fact, the European war scenarios for both superpowers contemplate the use of nuclear weapons,(2) and neither superpower has ruled out the first use of nuclear weapons.(3) In its European strategy, the U.S. is relying on "tactical" nuclear weapons and planning for "limited" nuclear warfare. However, the Soviet Union says it does not recognize such concepts as "limited" nuclear warfare. There is no reason to assume that once the nuclear threshold was crossed, the use of atomic weapons would be limited to the European battlefields.

continued on next page

Can It Be Stopped?

This is a pretty gloomy picture, but it is better to understand the direction of history than to be overtaken by it. Is there any hope of slowing the arms race? I think there is.

The most important difference between the present era and the periods prior to the other two world wars is the rise of the Third World. These former colonies are slowly expanding their independence and unity. They are the main force in the non-aligned movement. They have fought to maintain nuclear-free zones, for instance around the Indian Ocean. They joined with the smaller imperialist countries (like France) at the U.N. Special Session on Disarmament to call on the two superpowers to begin real disarmament. This is a just demand because the superpowers pose the greatest threat to the other countries. In order to bolster their positions both superpowers need to increase their exploitation and domination in the Third World. This puts the Third World at the center of the movement against the war preparations of the two superpowers.

Should SftP Join the Disarmament Movement?

SftP developed from the anti-war movement of the 1960's. Disarmament is a major focus of the growing international anti-war movement of the 1980's. As an organization whose interests cut across many issues, SftP is in a good position to raise the importance of disarmament with many different groups. Along with other groups it can help to make connections between the anti-nuke movement and disarmament. The scientific advances which are making a nuclear first-strike capability more possible are making a nuclear war more probable. The arms race is a horrendous example of science against the people.

The vast sums spent on defense do not bring us security. They increase our insecurity instead. Moreover, to prepare to defend their holdings abroad, the government and big corporations have to attack us at home. This means higher taxes, even fewer social services, the draft, greater discrimination, disciplining labor, and militarizing the society. The disarmament movement needs to support the people resisting these attacks and involve them in our efforts.

Full disarmament is not possible without radically changing our social order. But an effective

disarmament movement can postpone war, make it less devastating, and organize resistance to it. Neither the American people nor the other peoples of the world have anything to gain from this war.

Living in one of the two superpowers, we have a special role to play in the disarmament movement. We need to concentrate on our country's arms build-up and other war preparations, and expose its imperialist nature to all Americans. This concentration, however, does not mean we should be one-sided. We also need to see ourselves as part of the international anti-war movement and call for both superpowers to begin disarming. It is only this international effort that can put off the outbreak of a world war. □

FOOTNOTES

1. These ideas come out of the debate (and split) in the socialist movement during World War I. They are developed more fully by Lenin in his book, *Imperialism: The Highest Stage of Capitalism*.
2. Alva Myrdal, *The Game of Disarmament*. Random House, 1978. Chapter II, Sections 4 & 5.
3. *Ibid.* p. 323.



Total Disarmament
Fritz Eichenberg/1980 WRL Calendar

resources

Please send your items and suggestions for this column to Tallahassee SftP, c/o Progressive Technology, P.O. Box 20049, Tallahassee, FL 32304.

STRUGGLE FOR A NUCLEAR-FREE PHILIPPINES

Declining domestic demand for nuclear reactors, along with rising operating costs and growing opposition to the plants, have forced the U.S. nuclear industry to search out new markets in order to survive. Favorable choices have been Third World countries with repressive, centralized governments, such as the Philippines. **500 Mile Island: The Philippine Nuclear Reactor Deal** is an excellent account of the machinations of Westinghouse corporation, the Export-Import Bank, the Nuclear Regulatory Commission, and the Philippine government to bail out ailing Westinghouse and provide a source of energy useful only to foreign investors and a Filipino urban elite.

The report also discusses the impact of reactors on the Native Americans and the Australian Aborigines. Most of the world supply of uranium, a substance necessary to fuel reactors, is located on American and Australian aboriginal land. But governments have traditionally ignored the concerns and rights of the inhabitants, allowing the quest for raw materials to aid in the disintegration of their cultures.

The report is available for \$1.50. For a thorough, ongoing coverage of this and other important issues, readers can subscribe to the *Philippine Liberation Courier* (P.O. Box 24737; Oakland, California 94623). Monthly, \$5.00/year.

Another source for information on this topic is the Campaign for a Nuclear Free Philippines; 1100 17th Street, N.W.; Washington, D.C. 20036.

WOMEN AND DEVELOPMENT: INTERNATIONAL CONTACTS AND RESOURCES

The **ISIS International Bulletin** reproduces theoretical and practical information from the women's movement around the world. It includes resource listings, reports, notices, etc. to

help facilitate exchanges of ideas, contacts, experiences and resources among women and feminist groups.

The current issue (Spring 1979, #11) treats "Women, Land and Food Production." In 1978 two issues were dedicated to women and health. They also publish resource guides on topics like infant malnutrition and women in development.

ISIS is a resource and documentation center for the international women's movement. Its *Bulletin* is published quarterly (\$15/year) and is available from ISIS: P.O. Box 301; CH-1227 Carouge/Geneva; Switzerland.

WIN News (Women's International Network News) is a world-wide, open communication system by, for, and about women of all backgrounds, beliefs, nationalities, and age groups. Names and addresses are provided for each entry to enable readers to make their own contacts.

WIN News has covered such topics as women and health, women and environment, women and science, women and development, women and food, etc. Quarterly, \$15/year. *WIN News*; Fran P. Hosken; 187 Grant Street; Lexington, Mass. 02173.

IMPERIALISM AND HEALTH IN LATIN AMERICA

Community Action on Latin America (CALA) is a Madison-based research/action collective formed in 1971. CALA works on a variety of projects to promote understanding of the effects of U.S. policy in Latin America, and of the struggles of oppressed peoples in Latin America and the U.S.

The May 1979 issue (Volume 7, #5) of their *CALA Newsletter* is a fourteen-page special report entitled, "Poor Health, Rich Profits: Imperialism and Health Care in Latin America." For a copy, send \$1.00 to Community Action on Latin America; 731 State Street; Madison, Wisconsin 53703.

CLEAN ENERGY MOVEMENT IN JAPAN

PRIEE News, published by the People's Research Institute on Energy and Environment (PRIEE), is a monthly in English that reports on clean energy activism in Japan. As no subscription rates were given in the review copies we received, subscribers should be sure to inquire as they forward a couple of dollars for samples. People's Research Institute on Energy and Environment (PRIEE); B. Kaikan, 7-26-24; Shinjuku, Shinjuku-ku, Japan (160).

LABOR AND ENERGY

The Citizen/Labor Energy Coalition is a national organization of over 150 affiliates. It includes trade union, senior, consumer, citizen, environmental, neighborhood, housing, religious, and minority organizations.

The Coalition's goal is to organize a grassroots citizen's force which can meet, head on, the power of the oil and utility companies. It fights to hold down energy prices and utility rates and to win a national energy policy for the development of jobs and safe, clean, renewable sources of energy. For more information, write Citizen/Labor Energy Coalition; 600 W. Fullerton Avenue; Chicago, Illinois 60614.

ANNOUNCING A NEW INTERNATIONAL JOURNAL

Fundamenta Scientiae, subtitled: The International Journal for Critical Analysis of Science and the Responsibility of Scientists. Pergamon Press; Maxwell House, Fairview Park; Elmsford, New York 10523. Quarterly, bilingual (French/English), \$55.00/year. "This international journal is concerned with exploring problems of interest both to members of the scientific community and laymen concerning the function and foundations of science. The importance of scientific knowledge and research has become one of the most notable features of our time. The formerly individual approach to science has given way to a non-social organization of knowledge. This has resulted in making cross-disciplinary communication increasingly difficult. We have seen that science and technology condition men's private and social lives as never before and that this has great ethical, social and political implications."

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