TECHNOLOGY AND MOTHERHOOD: REPRODUCTIVE CHOICE RECONSIDERED

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> All human life on the planet is born of woman. The one unifying, incontrovertible experience shared by all women and men is that months-long period we spent unfolding inside a woman's body . . . most of us first know both love and disappointment, power and tenderness, in the person of a woman . . . we carry the imprint of this experience for life, even into our dying. [ADRIENNE RICH, *Of Woman Born*][1]

Women, men, and procreation

In the last ten years, medical research has led to the creation of children through laboratory methods and without sexual intercourse. These technologies are creating a challenge to our understanding of the relationship between women and reproduction. The "test-tube baby" technique seems

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[1] Adrienne Rich, *Of Woman Born: Motherhood as Experience and Institution* (London: Virago, 1977), 11.

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now to be a simple process compared to those currently being developed. For feminists, these new techniques mean rethinking our attitudes toward motherhood, pregnancy, and, most important, the relationship between an individual woman's right to exercise choice with respect to motherhood and the necessity for women to ensure that those individual choices do not disadvantage women as a social group.

Though we can develop positions on each technology, we must realize that they all form an interlocking chain leading us from the test-tube baby to eugenics and genetic engineering. In reality most of these new technologies are being developed in Western countries for use by white middle-class heterosexual women. Third World women struggle to feed their children, while Western women seek out expensive medical techniques to create more children. The new reproductive technologies discussed here will include only some of the techniques developed to assist an infertile woman (or in some cases a woman with an infertile husband) to conceive. It should be noted, however, that these technologies can be used by women who are not infertile or by those who may be infertile due to sterilization.

The women's movement of the 1960s characteristically rejected biological determinism and the nuclear family because these were seen to entrap women. Many women made the choice to be childfree. In this context motherhood became conflated with "the family" and with its rejection. Women were understood to have a variety of motivations for motherhood. They had children because they were socialized or conditioned to do so; because they were convinced of the rewards of mothering; in order to gain a self-identity in a world that continually denied this to them; to prove their worth and attain the status of a "mature adult"; or to consolidate a relationship. For many, motherhood represented a power base from which to negotiate the terms of their existence and survival. For many this is still the case.

In more recent years, however, another reevaluation of motherhood has begun that attempts to recreate the experience of motherhood and family in a nonexploitive way. A major text within this new perspective has been Adrienne Rich's *Of Woman Born: Motherhood as Experience and Institution*. Rich explores the *institution* of motherhood as a distorted and controlled experience at the expense of women for the benefit of men. She argues that it is the institutionalization of motherhood that is the problem, not the experience itself. Men, through their dominance within culture, have worked to divorce women from this experience because of the fear men have of the procreative power of women.[2]

In *The Politics of Reproduction*, Mary O'Brien maintains that some feminists have been too ready to leave reproduction out of their lives because of its history of entrapment. She advocates that we should in fact

[2] Ibid.

be using motherhood as a starting point for a new political theory: to redefine an understanding of gender relations beginning with reproduction. O'Brien claims that men have rituals and ritualistic meetings that reinforce their sex-based identity, but women do not. To celebrate being "female," O'Brien claims we need our own rituals, and the birth experience is a primary one that in the past was shared with other women. This tradition has been broken by the intervention of medical technologies in the birthing process.[3] As men became more involved in birthing and the general medical control of women's bodies, the emphasis in delivery moved away from the mother toward the newborn—away from women's ritual presence and toward the relationship between father and child. Reducing the isolation of women now in maternity hospitals is represented by the presence of the father, *not* by a reassembling of women's ritual presence.

O'Brien goes on to discuss what she calls "reproductive consciousness." In her terms, the first significant historical change was the discovery of physiological paternity, which transformed male reproductive consciousness: men discovered that they delivered the seed. The second and more recent change in reproductive consciousness was triggered by technology in the form of contraception: women gained the freedom to choose or reject parenthood. Women could thus control the role of the seed.

Because women labor at birth to bear children, women can be certain of their essential participation in genetic continuity, but men do not have this assurance. O'Brien includes all women in the female reproductive consciousness, since the experiences of menstruation, menopause, and pregnancy all indicate, in their own specific ways, the universal relationship of women to new life. Men have annulled male "alienation" from the reproductive process by their "appropriation of the child." Thus, by law or by force, men can control children *and* women.[4] Barbara Wishart, an Australian lesbian mother who conceived her daughter through artificial insemination by an unknown donor, reinforces the arguments of Rich and O'Brien. She writes that the experience of motherhood "has given me a deep bond with other mothers I know, and a sense of continuity, not only with the women in my own family, but also with the continuous line of women from antiquity to the present day who have borne children."[5] Wishart stresses that the experience of motherhood itself still has "something *positive* or *worthwhile* or even *wonderful* about it."[6]

Nancy Chodorow, in her book *The Reproduction of Mothering*, traces

[3] Mary O'Brien, *The Politics of Reproduction* (London: Routledge & Kegan Paul, 1981).

[4] Ibid., 33, 36. As O'Brien puts it, "Men are necessarily rooted in their biology, and their physiology is their fate" (ibid., 192).

[5] Barbara Wishart, "Motherhood within Patriarchy: A Lesbian Feminist Perspective," *Third Women and Labour Conference Papers* 1 (1982): 23–31.

[6] Ibid., 27, Wishart's italics.

the way mothering is passed on from mother to daughter. She writes that women, by and large, want to mother, that they find mothering gratifying, and, finally, that with all the conflicts and contradictions, women have succeeded at mothering.[7] In her article on "maternal thinking," Sara Ruddick analyzes the qualities of thinking and caring that enforced mothering has developed in women. Thus, though the practice of enforced motherhood is oppressive, the best qualities of mothering or maternal thinking embody the kinds of caring we wish men, too, could express to others. These qualities stand in opposition to the destructive, violent, and self-aggrandizing characteristics of "masculinity." Ruddick insists that the only way of introducing these values into the political domain is to assimilate men into the private domain of child care. This would break down the separation of the two spheres, take the pressure off women to live vicariously through their children, and give men an investment in making the public domain more committed to reforming child-care practices. However, she warns, "in our eagerness we mustn't forget that so long as a mother is not effective publicly and self-respecting privately, male presence can be harmful as well as beneficial."[8]

Some are wary of this increased role for men in parenting.[9] One anxiety is that if men do get involved they will in fact take over, leaving many women with *no* sphere of influence: "He creeps in like another mother, between the mother and the child."[10] A second anxiety stems from the fact that not all men are "good" fathers, as the rates of incest indicate.[11] Finally, with the intensification of male power inside the home comes the greater demand for a father's *rights* but not necessarily a parallel increase in his *responsibilities*. Jo Sutton and Sara Friedman outline this third anxiety by describing changes proposed in British law that specifically stress fathers' rights without an accompanying stress on their economic responsibilities to their children. Sutton and Friedman conclude, "What has resulted is a minimal change in caring and a significant move by men to increase their *rights* and hence, control."[12] They comment that women in the 150 refuges for battered women will argue that "when a man has access to a child, he is

[7] Nancy Chodorow, *The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender* (Berkeley: University of California Press, 1978).

[8] Sara Ruddick, "Maternal Thinking," *Feminist Studies* 6, no. 2 (1980): 432–67, esp. 361.

[9] Scarlet Pollock and Jo Sutton, "Fathers' Rights, Woman's Losses," *Women's Studies International Forum* 8, no. 6 (1985): 593–600.

[10] Elizabeth Badinter, *The Myth of Motherhood: An Historical View of the Maternal Instinct* (London: Souvenir Press, 1981), 324.

[11] See, e.g., Elizabeth Ward, "Rape of Girl-Children by Male Family Members," *Australian and New Zealand Journal of Criminology* 15 (1982): 90–99, and *Father-Daughter Rape* (London: Women's Press, 1984).

[12] Jo Sutton and Sara Friedman, "Fatherhood: Bringing It All Back Home," in *On the Problem of Men*, ed. Sara Friedman and Elizabeth Sarah (London: Women's Press, 1982), 125. Their emphasis.

able to use the child to further his own interests and to control that child's mother."[13]

In an ideological context where childbearing is claimed to be necessary for women to fulfill themselves, whether this is reinforced by patriarchal structures or by feminist values, discovering that you are infertile is a devastating experience.[14] The knowledge of one's infertility is a dramatic shock because we all assume our fertility and guard ourselves against its consequences. The testing process to detect infertility is extremely intrusive and exhausting. It can take from six months to six years for a woman finally to be diagnosed as infertile. In many instances, when the woman is in a heterosexual relationship, she is assumed to be the infertile partner, and tests are carried out on her before the man is tested.[15] Miriam Mazor has described the testing process as "assaultive": women are required to "expose their bodies for tests and procedures" and to "expose the intimate details of their sexual lives and their motivations for pregnancy."[16]

The experience of infertility has been called a life crisis. Part of that crisis comes from the knowledge that something over which a woman thought she had control was in fact not within her control. A woman may feel particularly frustrated and resentful if she has been using, for example, the pill or an intrauterine device for years only to find that birth control was unnecessary. The experience of infertility has been likened to the grief experienced after the death of a loved one. Barbara Eck-Menning discusses the experience of being isolated through infertility and of suddenly seeing fertility everywhere in the world except within yourself.[17] Naomi Pfeffer and Anne Woollett have stressed that the right of infertile women to have children is as imperative a right as that of being childfree.[18] Although the plight of infertile women clearly demands attention, the technologies supposedly developed to address their need for biological offspring affect us all. My concerns have gradually developed into one that focuses on the impact of these technologies on women as a social group.

Feminist arguments that have stressed the need for liberation from childbearing are beginning to appear in some medical and ethical literature as a justification for developing those technologies. Shulamith Firestone maintained that women could be liberated from maternity through use of a test-tube baby-creating system. In 1972, she wrote, "Pregnancy is barbaric

[13] Ibid., 124.

[14] See Robyn Rowland, "Women as Living Laboratories, the New Reproductive Technologies," in *The Trapped Woman: Catch-22 in Deviance and Control*, ed. Josefina Figueira-McDonough and Rosemary Sarri (New York: Sage Books, 1987).

[15] Barbara Eck-Menning, *Infertility: A Guide for the Childless Couple* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1977); and Miriam D. Mazor, "Barren Couples," *Psychology Today* 12 (1979): 101–12.

[16] Mazor, 104.

[17] Eck-Menning.

[18] Naomi Pfeffer and Anne Woollett, *The Experience of Infertility* (London: Virago, 1983).

. . . the temporary deformation of the body of the individual for the sake of the species." Women, she said, should be freed from "the tyranny of reproduction by every means possible."[19] Some reproductive technopatriarchs[20] claim this as feminist support for the artificial womb, conveniently ignoring Firestone's demands that power structures would need to change with the developing technology. Peter Singer and Deane Wells used Firestone's analysis to argue that feminists would support ectogenesis because it would "make a fundamental contribution toward sexual equality. Feminists who accept this argument will wish to see research into the development of complete ectogenesis pushed ahead with all due speed."[21]

In the past, when the new artificial means of conception have been discussed, some feminists may well have been receptive. But Firestone's discussion of the potential of artificial means of conception, for example, took place when asexual reproduction was not a reality. The techniques currently being developed are clearly not moving women toward greater freedom and liberation. In practice, mainly women who are white, middle class, and in a relationship with a man can have access to these technologies in Australia and Britain. In addition, techniques like in vitro fertilization (IVF) carry with them a false promise of success.

There are currently a number of feminist arguments against the new reproductive technologies.[22] Ruth Hubbard, for example, has argued against IVF on the grounds that it ties women's reproduction to marriage alone; that its complicated and closed training program for professionals excludes women from administering and controlling it, locking us all into a male-controlled high-technology model of birth; and that the enormous expense of it means offering minimal health care to other women.[23]

My own concerns have been developing around the issue of male control of reproductive technology; its inevitable route to eugenics and genetic engineering; and the issues of choice and control.[24] Barbara Ehren-

[19] Shulamith Firestone, *The Dialectic of Sex* (London: Paladin, 1971), 188, 193.

[20] I am indebted to Renate Duelli Klein for this term.

[21] Peter Singer and Deane Wells, *The Reproduction Revolution: New Ways of Making Babies* (Melbourne: Oxford University Press, 1984), 137. See also William Walters, "Cloning, Ectogenesis, and Hybrids: Things to Come?" in *Test-Tube Babies: A Guide to Moral Questions, Present Techniques and Future Possibilities*, ed. William Walters and Peter Singer (Melbourne: Oxford University Press, 1982).

[22] See, e.g., Rita Arditti, Renate Duelli Klein, and Shelley Minden, eds., *Test-Tube Women: What Future for Motherhood?* (London: Pandora Press, 1984); Gena Corea et al., eds., *Man-made Women: How the New Reproductive Technologies Affect Women* (London: Hutchinson, 1985); Gena Corea, *The Mother Machine: From Artificial Insemination to Artificial Wombs* (New York: Harper & Row, 1985).

[23] Ruth Hubbard, "The Case against In Vitro Fertilization and Implantation," in *The Custom-made Child? Women-centered Perspectives*, ed. Helen Holmes, Betty Hoskins, and Michael Gross (Clifton, N.J.: Humana Press, 1981).

[24] See, e.g., Robyn Rowland, "Reproductive Technologies: The Final Solution to the Woman Question?" in Arditti et al., 356–70, "Motherhood, Patriarchal Power, Alienation and

reich and Deirdre English have clearly outlined the history of the gradual usurpation of the birth process by a male-dominated medical profession.[25] I would add that medical research is now expanding into the area of early pregnancy and conception, and that these moves represent the interests of masculine science in controlling women's bodies.

For feminists the issue then becomes one of choice versus control. Within the area of abortion, we claimed the "right to choose," but I argue that we mean the "right to control" our own bodies. We have then to ask whether the new reproductive technologies give women greater control over our lives. The evidence to date shows that they patently do not.[26] As Jalna Hanmer has pointed out, women lack input into the development of science and technology, but adding more women will not be a solution.[27] According to Rebecca Albury, "male domination doesn't necessarily require a majority of men. Some women have been socialised by the profession. 'Male control' doesn't essentially mean control by individual men, it means control which benefits men more than women most of the time. Far from each man exercising personal authority, things are much more complex. We live in a network of power relations that both defines 'masculinity' and ensures the success of individuals and activities that reinforce that definition."[28] The ethic of control in science, supported by the promise of professional and economic gain, has encouraged research on reproductive technologies. The unwillingness of scientists to consider the social implications of their work has allowed them to expand research in this area without community debate. However, the argument that they are addressing the needs of women is beginning to look less altruistic as their efforts to generate profits intensify.[29]

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the Issue of 'Choice' in Sex Preselection," in Corea et al., and "A Child at Any Price? An Overview of Issues in the Use of the New Reproductive Technologies and the Threat to Women," *Women's Studies International Forum* 8, no. 6 (1985): 539–46.

[25] Barbara Ehrenreich and Deirdre English, *For Her Own Good: 150 Years of the Expert's Advice to Women* (New York: Anchor Books, 1978).

[26] I am currently expanding this argument. See Robyn Rowland, "Choice or Control? Women and Our Relationship to the New Reproductive Technologies" (paper delivered at the conference "Liberation or Loss? Women Impact on the New Reproductive Technologies," Canberra, Australia, May 1986).

[27] Jalna Hanmer, "Transforming Consciousness," in Corea et al., 98–99.

[28] Rebecca Albury, "Reproductive Technology and Feminism," *Australian Left Review*, no. 89 (Spring 1984), 46–55, esp. 47.

[29] A public outcry followed the establishment of IVF Australia at Monash University. See, e.g., Philip McIntosh, "Community Group Calls on Uni. to Reveal IVF Details," *The Age* (March 29, 1985), and "Secret In Vitro Plan Angers Academics," *The Age* (March 20, 1985). Also, Calvin Miller, "IVF: Who Will Reap the Profits?" *Australian Doctor* (March 6, 1985).

New reproductive technologies

In vitro fertilization

As with all of these developments, IVF began with animal experimentation. According to Gena Corea, the experiment progressed from mice to rats to sheep to cows to women. It was not tested in higher primates.[30] For humans the process involves taking an egg from a woman and sperm from her husband or partner, then putting the two together within fluid in a petri dish. This led to the phrase "test-tube baby." The resulting embryo is then placed back inside a woman's uterus for implantation and, it is hoped, pregnancy. It was originally designed for women who were infertile for reasons such as blocked or diseased fallopian tubes. Variations on this technique include surgical extraction of sperm for in vitro fertilization; the use of sperm from an unknown donor; the use of donor eggs; and, finally, the use of a donor embryo—an embryo that is not the genetic material of either the woman into whom it is transplanted or the social father.

The woman who is involved in IVF usually has undergone a series of exhaustive and intrusive tests over a period of many years. The IVF cycle lasts for about two weeks, with the monitoring of the woman for her daily plasma levels, cervical mucus, and ultrasound examinations to determine ovarian progress. The woman is then involved in inpatient care with hormonal assays, the laparoscopic collection of eggs, and, if egg collection is successful, fertilization and embryo transfer. The laparoscopy to collect eggs is not without the normal risks of general anaesthesia and surgery. In addition, most of the women are superovulated. This means they are given doses of hormones or fertility drugs to increase the number of eggs that their bodies will produce per cycle, usually five or six eggs, but instances have occurred where women have been superovulated to produce up to eleven eggs.[31] The major risk here is that the ovaries will be hyperstimulated, but there are a number of other possible side effects as well.[32]

The promises by the "technodocs" of a solution to infertility have been misleading at best.[33] What they have sometimes produced is a technological product—the baby. But a baby is not a cure for infertility, and even this promise of a child has been a false promise for most couples. The success

[30] Corea (n. 22 above).

[31] Carl Wood, "In Vitro Fertilization—the Procedure and Future Development" (paper delivered at the Conference on Bioethics, St. Vincent's Bioethics Centre, Melbourne, Australia, May 1984).

[32] Pfeffer and Woollett (n. 18 above); B. Henriet et al., "The Letal Effect of Super-Ovulation on the Embryos," *Journal of In Vitro Fertilization and Embryo Transfer* 1, no. 2 (1984); Gabor Kovacs et al., "Induction of Ovulation with Human Pituitary Gonadotrophin," *Medical Journal of Australia* (May 12, 1984), 575–79.

[33] "Technodocs" indicates doctors involved in technological processes in this field. The word was coined by Renate Duelli Klein.

rates of in vitro fertilization are extremely low and vary greatly across clinics. Australian national figures from the Perinatal Statistics Unit, 1979–84, indicate that 909 pregnancies took place in eleven centers. Only 54 percent resulted in *live* births. There were 5 percent ectopic pregnancies and 25 percent spontaneous abortions. In addition, 34 percent—or four times that of the normal population—of the babies born had a low birth weight, with all the encumbent dangers to the child.

The perinatal mortality rate is also four times that of the normal population. In addition, 43 percent of births were by cesarean section. Of those who became pregnant, 53 percent had had previous pregnancies. Some probably lost children through abortion or miscarriage and then became infertile. Some were sterilized in a previous marriage and now wanted a child with a second husband.[34]

The figures indicate that, on the average, for every 100 women who go into an IVF program in Australia and Britain, at least eighty-six of them will never become pregnant.[35] Internationally, however, clinics continuously announce more encouraging (20–25 percent) but less accurate rates. A recent survey in the United States found that, of fifty-four clinics questioned, half had never sent a patient home with a baby. Yet as Gena Corea and Susan Ince indicate, these clinics still claim success rates of 25 percent.[36] Doctors questioned in this survey indicate that the highest rate for IVF births in Australia is 10 percent. "Success rates" should more accurately be called "failure figures."

The medical profession itself is very concerned about the misleading information given to the public. In a recent editorial in *Fertility and Sterility*, doctor Michael Soules writes that the truth about IVF procedures has been widely abused, "primarily by IVF practitioners." He details the way in which medical researchers have manipulated the statistics and places the blame unquestionably on IVF practitioners.[37]

[34] Perinatal Statistics Unit, *In Vitro Fertilization Pregnancies, Australia and New Zealand: IVF Figures, Australia and New Zealand, 1979–1984* (Sydney, Australia: University of Sydney Publication, 1986).

[35] There are various ways of presenting IVF statistics, and each method yields a different result. David Davies, a member of the Warnock Committee in Britain, cited success rates there of 10–15 percent (paper delivered at the YWCA Conference, "A Child at Any Price?" Exeter, England, November 1984). Michael Soules notes a worldwide average of 13 percent pregnancy rate per cycle ("The In Vitro Fertilization Rate: Let's Be Honest with One Another," *Fertility and Sterility* 43, no. 4 [April 1985]: 511–13).

[36] Gena Corea and Susan Ince, "IVF: A Game for Losers at Half of U.S. Clinics," *Medical Tribune* 26, no. 19 (1985): 11–13.

[37] Soules. Soules names the commercialization of IVF as the reason for misleading statistics: "Competition appears to be the root of the problem . . . many IVF programs in this country are struggling to treat a sufficient patient volume to maintain the program . . . the wide spread practice of exaggerating the IVF pregnancy rate appears to be a marketing ploy" (ibid., 513).

The financial cost has been found in one Australian study by Ken Mao and Carl Wood to be the main reason for withdrawal from programs. It costs patients in Australia up to $3,000 Australian per attempt, and about two-thirds of this is refundable through medical insurance. Other costs are involved too; taking time off from work, traveling, and staying in hotels. This study reported that couples also withdrew because of the emotional costs: anxiety, depression, disruption of a normal life and of work and career, and the strain placed on the marriage. Mao and Wood estimate a 43 percent dropout rate, which they consider to be high.[38] These costs are only a portion of the overall expense, including the costs to society in terms of the diversion and commitment of medical expertise, staff, research funding, hospital facilities, and now, in Australia, extensive counseling services—all for a basically *unsuccessful* technology.

The cost to participating women is more difficult to quantify. Their bodies are used as living laboratories. One recent study carried out by Barbara Burton, herself a patient on an IVF program, suggests that the kind of issues arising in this area are identical to those women confront constantly in their relationship with a male-dominated medical profession. The women speak of the lack of dignity of the process, the lack of information given to them, the lack of concern from the medicos involved, and the fact that doctors ignore the women's experiences with the various drugs given to them. One woman, discussing the lack of dignity, said, "You feel like a piece of meat in a meat-works. But if you want a baby badly enough you'll do it." The stress women experience when the program fails them and they do not get pregnant is enormous. They experience it as a personal failure rather than a failure of the technology. In reaction to failure, one woman said: "My husband went to pieces, I felt I was dying, I was really crook [ill], but I didn't let any pent-up emotions come out, I had to look after him."[39]

The women in Burton's study report the inability of the doctors to talk to them about this experience: "I would really have liked to have gone back and talked to [my gynecologist] after it didn't work, but as [the IVF scientist] says 'You're history, we're on to the next one, we haven't time for you now, we want to get on with it.'" This same IVF scientist also commented: "One way the teams cope with failure is to avoid follow-up contact with failed patients." Many of the women were anxious about being used as guinea pigs. One wrote, "The professor tells us that according to the labels and his books they [the drugs] don't have side effects. Once someone comes out and is brave enough to say you get side effects, other women say

[38] Ken Mao and Carl Wood, "Barriers to Treatment of Infertility by In-Vitro Fertilisation and Embryo Transfer," *Medical Journal of Australia* (April 28, 1984), 532–33.

[39] Barbara Burton, "Contentious Issues of Infertility Therapy—a Consumer's View" (paper delivered at the Australian Family Planning Association Annual Conference, March 1985), 5, 8.

so too. I think that's what he's worried about, that side effects are catching." And another, "I sometimes get concerned [about] what's going to happen to us in ten to fifteen years time. Our generation were guinea pigs for the Dalkon Shield, and now we're guinea pigs for a new form of modern technology."[40]

Surrogate embryo transfer

This is often called lavage. I call it "flushing." This technique uses a fertile woman as an incubator for the first few days of life of the embryo. She is inseminated with the sperm of the husband of an infertile woman, conceives, and the embryo is then flushed from her body and placed in the infertile woman if all goes well. If all does not go well, the incubator woman may become pregnant or miscarry, and if the pregnancy is viable she will have to choose either to abort or to carry the child to full term. She may experience pelvic infection and/or ectopic pregnancy, "either one of which could terminate her physiological reproductive career."[41]

In North America, this procedure has already been used. The results of twenty-nine flushings after artificial insemination of nine donor women (using sperm from the husbands of twelve infertile women) were twelve embryos. These were transferred to the infertile women, yielding two successful pregnancies and one ectopic pregnancy, which had to be surgically removed. One donor woman had a "retained pregnancy" that aborted spontaneously.[42]

If flushing were to become regularly used, the donor would eventually face the same superovulation that IVF patients currently undergo. This would be the next logical step. Leroy Walters, in the *Journal of the American Medical Association*, warns of the "potential risks of uterine lavage—and, in the future, of possible superovulation to the embryo donor."[43] Indeed, the researchers responsible for the application of this technique have indicated that they feel "donor fecundity needs to be improved."[44] In Australia, the ethics committee of the National Health and Medical Research Council, under pressure from feminists, has put a moratorium on surrogate embryo transfer for the time being.[45]

[40] Ibid., 9.

[41] Howard Jones, "Variations on a Theme," editorial, *Journal of the American Medical Association* 250, no. 16 (1983): 2182–83.

[42] Maria Bustillo et al., "Non-surgical Ovum Transfer as a Treatment in Infertile Women," *Journal of the American Medical Association* 251, no. 9 (1984): 1171–73. See also Robyn Rowland, "A Child at Any Price?" (n. 24 above).

[43] Leroy Walters, "Ethical Aspects of Surrogate Embryo Transfer," editorial, *Journal of the American Medical Association* 250, no. 16 (1983): 2183.

[44] Bustillo et al., 1173.

[45] Philip McIntosh, "Research Council Rejects Surrogate Embryo Transfer," *The Age* (February 22, 1985).

Cloning

Cloning has been successfully carried out with frogs and mice.[46] Basically, the offspring has the genetic constitution identical to that of the "parent" who donated the original cell nucleus. Chilling statements have emerged in the medical and ethical literature, such as that by American Nobel laureate Joseph Lederberg, who commented that "we would at least enjoy being able to observe the experiment of discovering whether a second Einstein would outdo the first one."[47] Jane Murphy claims that, within the literature on cloning, "women are viewed as passive physical material for the cloning process: ovaries, eggs, uteri. Meanwhile, men are seen as 'parents' of clonal offspring—simply by donating a set of chromosomes."[48]

Sex predetermination

This can now be attempted at two stages: during pregnancy or before conception itself.[49] During pregnancy, amniocentesis or ultrasound can be used to assess the sex of the fetus, so that the parents can abort the fetus if it is of an unwanted sex. Sex predetermination before conception is being developed as a method to separate out the male-determining from the female-determining sperm.[50] In fact a sperm-washing technique is being used in North America in at least seven clinics by a company called Gametrics Ltd. It is 75 percent successful for selecting boys. The company has patented the method.[51]

Most studies have indicated that most societies are male-preferring.[52] With the introduction of these techniques the sex-ratio balance may be severely disrupted. In India, where amniocentesis followed by the abortion of female fetuses is on the increase, this is already happening. Madhu Kishwar has documented a shift in the sex-ratio balance since 1901. In that year, there were 972 women per 1,000 men, but by 1981 there were only 925 women per 1,000 men. In other words, in 1901 there were 9 million more men than women and by 1981, there were 22 million more men than

[46] See Jane Murphy, "From Mice to Men? Implications of Progress in Cloning Research," in Arditti et al. (n. 22 above).

[47] Joseph Lederberg, "Experimental Genetics and Human Evolution," *Bulletin of the Atomic Scientists* 22 (1966): 4–11, esp. 10.

[48] Murphy, 87.

[49] Betty Hoskins and Helen B. Holmes, "Technology and Prenatal Femicide," in Arditti et al. (n. 22 above).

[50] Rowland, "A Child at Any Price?" (n. 24 above).

[51] See Richard Lyons, "Ordering Your Baby's Sex: Is It Playing God?" *Sydney Morning Herald* (May 30, 1984); Ferdinand Beernick and Ronald Ericsson, "Male Sex Selection through Sperm Isolation," *Fertility and Sterility* 38, no. 4 (1982): 493–95.

[52] Rowland, "Motherhood, Patriarchal Power, Alienation and the Issue of 'Choice' in Sex Preselection" (n. 24 above); Nancy Williamson, *Sons or Daughters? A Cross-cultural Survey of Parental Preferences* (London: Sage Publications, 1976).

women.[53] The result of such practices may be, as Colin Campbell says, "more of everything, in short, that men do, make, suffer, inflict and consume."[54]

Ectogenesis

This is the scientific term for growth of the fetus *outside* the womb. At Stanford University in the United States, scientists have developed an artificial womb or fetal incubator. Oxygen and nutrients are pumped into it, and young human fetuses that are products of spontaneous abortion have been kept alive for up to forty-eight hours.[55]

From the birth end of the continuum of pregnancy, younger and younger premature babies are now kept alive in increasingly sophisticated artificial environments, possible now from twenty-four weeks into the pregnancy. If we consider the process from the other end, that is, from the point where an embryo is created in vitro, we find that it is possible to keep them alive at least until the thirteenth or fourteenth day. Researchers need only find an artificial environment that would bridge the gap of fourteen days to twenty-four weeks. The real problem with ectogenesis is in perfecting the artificial placenta. When this succeeds, an egg could be fertilized and brought to term within an artificial or "glass" womb.[56]

Development of the artificial womb has been promoted as having the following advantages: fetal medicine would be improved; the child could be immunized while still inside the "womb"; the environment would be safer than a woman's womb; geneticists could program in some superior trait on which society would agree; sex preselection would be simple; women would be spared the discomfort of childbirth; women could be permanently sterilized; and, finally, a man would be able to prove beyond a doubt that he is the father of the child. Children may then be created who are neither borne by, nor born of, woman.[57]

Impact on women

Increased technological intervention into the processes by which women conceive is increasing the male-dominated medical profession's control of

[53] Madhu Kishwar, "The Continuing Deficit of Women in India and the Impact of Amniocentesis," in Corea et al. (n. 22 above).

[54] Colin Campbell, "The Manchild Pill," *Psychology Today* (August 1976), 86–91, esp. 88. For a negative vision, see also John Postgate, "Bat's Chance in Hell," *New Scientist* 5 (1973): 11–16, esp. 16.

[55] Rosalind Herlands, "Biological Manipulations for Producing and Nurturing Mammalian Embryos," in Holmes et al. (n. 22 above).

[56] John Buuck, "Ethics of Reproductive Engineering," *Perspectives* 3, no. 9 (1977): 545–47.

[57] Edward Grossman, "The Obsolescent Mother: A Scenario," *Atlantic* 227 (1971): 39–50.

procreation and will lead inevitably to greater social control of women by men.[58] Already, the language of reproductive technology vividly illustrates the degree to which women's bodies are dehumanized with discussions of "harvesting" of eggs and "uterine environments." Linked with the emergence of these technologies is the development of a concept of a "surrogate mother." The term itself is a misnomer. The woman is in no way a surrogate and is *in fact* the biological mother of the child. By naming her as a surrogate, commercial enterprises can more easily control and exploit the woman's pregnancy by denying her biological relationship to her child.

The issues within surrogacy are too complex to debate here, but, briefly, surrogacy promotes the economic, physical, and emotional exploitation of women. A woman who contracts her body as a "surrogate" mother agrees to give up control over her pregnant body in return for money. She faces the possible future of grieving similar to that experienced by women who relinquished their children for adoption.[59]

There is also an increasing debate occurring concerning the rights of the fetus to be treated as a "patient," which stems from the way reproductive technologies are splitting women from the embryo/fetus. Discussions of the fetus as "patient" are horrifying in their representation of women as merely the capsules or containers for the fetus.[60] In debates concerning coerced cesarian section, physicians have claimed the right to restrain a woman and do the surgery under a court order if the woman refuses surgery and the fetus is said to be at risk.[61]

Commercialization of the new reproductive technologies and of surrogacy have led to the promotion of research for profit (as opposed to public health services). These technologies also attract huge government funding in Australia, drawing research and funding away from the less glamorous work on the prevention of infertility.

Research on surrogate embryo transfer was not funded by the National Institute of Health but by Fertility and Genetics Research Incorporated, a Chicago-based for-profit company. Three of the researchers working for this company have been offered shares in it. The company has applied for a patent both on the instruments used in the procedure and on the *process*

[58] There is no space to detail here the increasing links between IVF development and genetic engineering. But see, e.g., "DNA Libraries Are Now Being Built for Genetic Studies," *University Bulletin*, vol. 33, no. 17 (January 1985); Christopher Joyce, "Human Genetic Experiment Likely Soon," *New Scientist* 19 (January 1984): 7.

[59] See Susan Ince, "Inside the Surrogate Industry," in Arditti et al. (n. 22 above), 99–116; and Corea (n. 22 above).

[60] Ruth Hubbard, "The Fetus as Patient," *Ms Magazine* (October 1982), 31–32; Corea.

[61] Sally Koch, "Treatment of Gravida against Her Wishes Debated," *OB Gyn News* 20, no. 9 (January 1985): 26–27; "Some Guidance Emerging on Rights of Fetus, Neonate," *OB Gyn News* 20, no. 10 (May 1985): 17; Claudine Escoffier-Lambiotte, "The Fetal Medicine Debate: The Controversy over 'Pre-Birth' Intervention," *World Press Review* (September 30, 1983), 34–36.

itself.[62] If granted, it would mean that this company owned and controlled both the instruments and the process, thereby restricting evaluation by other researchers and empowering the company to deny information and use of the technique.

In Australia, the Monash University IVF team, headed by Carl Wood, has entered into a commercial enterprise. The details of this company, IVF Australia, nearly two years after negotiations first began, have still not been released to either the university council or the public who funds the institution. The shroud of secrecy around IVF Australia has been seen as a threat to academic freedom, to scientific scrutiny, to public access to tax-supported research information, and, of course, to public control and scrutiny.[63] Such a collaboration between research and commercial interests uses women in essentially experimental programs and asks the participants and the public to underwrite the expense so that the researchers can enter into commercial contracts for profit. In addition, commercializing the processes of reproduction underscores a perception of a child as a product; a product that will eventually be "custom" designed.

The validation of white middle-class definitions of the perfect baby; an inability to accept infertility, mortality, and imperfection; and the impact on human society of the split between sexuality and procreation are just a few of the problematics of this scenario.[64] Because women, even in patriarchal culture, have always retained without question the power and responsibilities of reproduction, the new technologies have disturbing implications for our lives. For many women—past, present, and future—childbearing represents the major power base they have from which to negotiate the terms of their existence. But as Leon Kass, a doctor himself, has said, power "rests only metaphorically with humankind; it rests in fact with particular men, geneticists, embryologists, obstetricians."[65] Men run the governments, train the doctors, make birth-control devices, allocate research grants, decide on the availability of abortion, run the companies that will market the products, and make the money. As Jalna Hanmer and Pat Allen have said, women act as agents of male

[62] George Annas, "Surrogate Embryo Transfer: The Perils of Patenting," *Hastings Centre Report* (June 1984), 25–26.

[63] McIntosh, "Secret In Vitro Plan Angers Academics" (n. 29 above); Nigel Wood, "Monash and IVF—Why the Secrecy?" *Journal of Advanced Education* (July 1985), 5; Rosemary West and Claire Miller, "IVF Investment Questioned," *The Age* (May 12, 1986), 3.

[64] Women will also be differentially disadvantaged by reproductive technology depending on race and class with respect to access to programs. However, I point this out *only* in order to show how women are divided into worthy and unworthy mothers, depending on race and class. I do not argue for equal access in this case because that would be tantamount to supporting yet another system by which they would be exploited.

[65] Leon Kass, "Making Babies—the New Biology and the 'Old' Morality," *Public Interest* (Winter 1972), 13–56.

individual and social power.[66] We continue to collude to our own disadvantage.

The renewed positive attitude toward motherhood explored in the first part of this paper assumes that all women can voluntarily and easily become pregnant through sexual intercourse. It was emerging before the technologies discussed here came into existence. Ironically, this move to value positively women's role in reproduction has given technopatriarchs within medical research a justification for their continuing control of and experimentation with women's bodies, in the name of the power of mothering.

Within the context of biomedical research and its complement, genetic engineering, we need to reassess what "choice" is for women. As Barbara Katz Rothman has commented, in gaining the choice to control the quality of our children, we may lose the choice *not* to control the quality, that is, the choice of simply accepting them as they are. She points out that we also forfeit the right *not* to know some things, like the sex of the unborn child.[67] One of the basic tenets of the women's movement has been to secure and protect a right of choice with respect to sexuality and reproduction. We demanded the right to choose whether to have children or not and gained the double-edged access to contraception and abortion.

In the past, these choices opened up opportunities for women as a social group. But what of a choice that closes opportunities for the majority of women and places our future at risk? Does the desire, the need, the wanting of choice have no limits? If a time comes when the rights of one group of women place the majority of women in a dangerous position, does not the concept and terminology of rights become meaningless? Some would argue that the principle of freedom of choice may be second to that of "fairness" and equal treatment.[68]

It may be that stressing the value of choice gives the medical profession more, and not less, control in terms of reproductive technologies. The right to choose the sex of your child; the right to use donor ova; the right to use or to be a surrogate mother and the right of the medical profession to service these rights and make money out of them, have evolved tacitly as new biomedical developments are made available. And that *is* what we wanted with abortion and contraception: the availability of options.

Kass has commented that "the advent of these new powers for human engineering means that some *men* may be destined to play God, to recreate

[66] Jalna Hanmer and Pat Allen, "Reproductive Engineering: The Final Solution?" in *Alice through the Microscope: The Power of Science in Women's Lives*, ed. Brighton Women and Science Group (London: Virago, 1980).

[67] Barbara Katz Rothman, "The Meanings of Choice in Reproductive Technology," in Arditti et al. (n. 22 above).

[68] Tabitha Powledge, "Toward a Moral Policy for Sex Choice," in *Sex Selection of Children*, ed. Neil Bennett (New York: Academic Press, 1983).

other *men* in their own image" (emphasis added).[69] Where will women's place be in this new society? Will we be obsolete, permanently unemployed, disposable? Have we learned anything from experiences like those associated with the pill and the Dalkon Shield? As Roberta Steinbacher says, "Who invented it, who manufactured it, who licensed it, who dispenses it? But who dies from it"?[70]

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[69] Kass, 45.

[70] Roberta Steinbacher, "Futuristic Implications of Sex Pre-Selection," in Holmes et al. (n. 23 above), 187–92, esp. 189.