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"FEMALE REPRODUCATION AND SCIENTIFIC TECHNOLOGY"

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INTRODUCTION

This is a frightening world. Technological advances in the world of reproductive technology are allowing us glimpses into a future where there is no sickness or physical deformity. Genetic engineering is a concept which has sparked off much debate on ethical, moral and religious grounds. What often tends to be overlooked is the existence of these genetic technologies as simply the most contemporary attempt on the part of the scientific and medical world to'understand' human sexual reproduction, and through understanding, to conquer and control.

Throughout the course of my thesis I will refer to 'science', 'medicine' and the 'scientific and medical' professions. While I do not consider 'science' as an exclusively male pursuit, let me just state that I believe in 'science technology' as a masculine culture. Stereotypically, anything which is considered vaguely technical or mechanical generally exists within the sphere of male activity. Traditionally, one had to be strong to work with machinery, and women were considered "too weak" and "incompetent" around machinery. Add to this the historical potentcy of weapons and tools in the hunt-orientated male culture, and we find today a comtemporary world of technology which is undeniably dominated by men. One would expect that in the development of streamlined micro electronics (for example computer software) would have eliminated this However, different degrees of childhood gender bias. exposure to technology, the prevalence of different role models, different forms of 'schooling', and the extreme segregation of the labour market all lead to the undeniable bias within the world of science. The bias also exists within suiting and serving the needs of society.

Furthermore, women have always been seen to struggle for control of their reproductive capabilities. It is suggested that man's alienation from reproduction (his sense of disconnection from his seed during the process of conception, pregnancy and birth) has highlighted a relentless



male desire to master nature and to construct self facilitating social institutions and cultural patterns. Nothing links the human animal and nature so profoundly as a woman's reproductive system, which enables her to share "the experience of bringing forth and nourishing life with the rest of the living world". (Collard, 1988, pg.106) Under patriarchy, "A woman's strength is reversed, and her natural integrity negated" (Collard 1988, pg. 100). She is identified as part of nature and as such, must be subdued and controlled. This control over woman's reproductive power (manifesting itself as the control of science over fertility etc.) serves to give men an illusion of procreative conformity and power. However, these new reproductive technologies may be the vehicle which will turn man's illusions of reproductive power into a reality.

On the other hand, these technologies may also be viewed as the means through which women can lose the shackles of their physiological burden. Free from the biological burden of procreation and liberated from the emotional baggage associated with "social motherhood", women could finally begin to explore and experience 'equality' in a way never before possible.

Both these views are the extreme reactions to a topic which has sparked off much discourse and debate. Reproductive technology is, as I have already mentioned, simply the latest in a historical legacy of technological intervention into female procreation. The first section will concern itself with the periods in reproductive history where 'science' in the name of 'progress' has intervened into conception, pregnancy and childbirth. While some technologies appear to benefit womankind, one need not explore too deeply to discover a hidden agenda in the majority of these "innovations".



The second section will deal with identifying these technologies which are being used and implemented in society today. These technologies will range from such common proceedures as contraception to more hypothetical "innovations in progress" (i.e. genetic engineering). I have attempted to highlight the pros and cons of each development and to identify when and where their crossover from scientific phenomonon to routine usage holds potential adverse implications for the status of women regarding human reproduction.



CHAPTER ONE

Scientific Intervention into Reproduction - A Historical View

Before 1800 the overwhelming majorty of mothers in Western Europe were assisted in birth by other women, sometimes a female relative but more usually, by a midwife. These midwives fall into two distinct categories, rural and urban. Rural, or traditional midwives practised in small towns and villages without any formal training or supervision. They worked independently, acquiring their knowledge through personal experience and tradition. Urban midwives, while not formally trained, "tapped a body of formal learning which had been passed on from antiquity.". (Shorter, 1972, pg.36). More consolidated than their rual countrparts, their shared learning and experiences led to the establishment of certain codes of treatment in order to deal with particular problems arising while attending a birth. Rural midwives, on the other hand, did things the way they had always been done, wihtout really any understanding of the specific medical complications which they experienced, or the recommended course of action or treatment. In some cases regardless of the rustic or "supernatural" reason, a treatment would indeed be of some help to the birthing woman. For example, rubbing the abdomen to keep the uterus from'wandering' around the body after birth may sound ridiculous, but it did, in fact, help to relieve the pangs as the womb contracted in order to expel the placenta. On the other hand, groundless fears for midwives such as "strangulation of the heart" by a wandering placenta led to the extreme evasive action of yanking on the umbilical chord immediately after birth before the cervix would close and trap it. This action often resulted in sections of the uterine wall coming away with the placenta causing blood loss and shock (Shorter 1972, pg.48).

Information concerning the success role of these midwives comes mainly from the case books of 18th century doctors. This information, while providing insights into the working experience of these women, failed to give an unbiased account of their success role, for two reasons,



the first reason being that the paths of midwives and doctors crossed most frequently where a midwive failed to deliver a mother or inadvertantly caused a post delivery complication such as infection. (I hasten to point out that these same journals are full of reports of the same failures on behalf of the doctors). The other reason has its roots in the discovery and identification of 'science' as a noble and God-like pursuit. This undeniably "masculine culture" (the evolving scientific and medical culture) rode upon the title of "progress" and felt the complusion to identify, classify and formulate theories on all natural processes and consequently, to master them. Therefore, as soon as means could be devised, birthing was gradually taken from the hands of women and placed in the care of the scientific and medical professions. As we will see this pattern evolved gradually in a social climate ripe for accepting notions of women being incapable of controlling their own destiny.

The birth of a child in 18th Century Europe was considered a woman's festival. Pre-natal care in its present form did not exist. Concern for the woman's wellbeing as regards health issues in pregnancy manifestsd itself as a complicated set of rules and rituals which ensured the safe delivery of the child. In parts of England or Ireland, for example, it was believed that if a pregnant woman blasphemed or swore, her child would be born with a physical deformity. (Shorter, 1972, pg. 43) If the purpose of these superstitions was to fill her with a fear of the dark forces within her womb, they succeeded admirably. This fear was, however, not restricted to matters gynecological, but extended throughout the internal workings of the human body, male or female. There was, however, a belief in the female reproductive organs as having a life of their own, and consequently, women came to view their procreative regions as supernatural accomplices, consorting with the dark forces of the other life. On the onset of labour, any woman from ancient crones offering advise to young girls seeking insights, could and did gain admittance into the room where the birth was taking place.



Most women would experience the first pangs of labour in the comfort of the marital bed, but would move to a prepared bed of straw on the floor before the amniotic sac, or waters, broke. The attending women from the community were generally present in order to lend support and offer encouragement to the labouring woman.

"When a labouring woman feels the first pangs, the neighbours come running, filling up the narrow hut. Some of them walk around with her, others rub her and massage her. Some blow into her mouth to prevent her uterus from climbing up and suffocating her" (Shorter, 1972, pg. 54).

In choosing the position in which to birth, the pregnant woman had full control, often changing position, and indeed, moving about the room. Most women adopted a position favouring gravity. Rural women tended to choose standing or squatting with support either from a rope thrown over a rafter, or from two flanking women standing on each side of her. From the fifteenth century to the early, nineteenth, sophisticated urban women of the aristocracy and the merchant classes tended to give birth on specially designed birthing stools. These stools were the property of the midwife and originated in Italy.

The most significant social upheaval in the history of reproduction and technology, was the industrial revolution. Before the revolution the medical profession did not concern itself with the problems of child bearing. By the early 1800's however, 'science' and 'progress' were two very important topics in social discourse. New inventions such as steam power and precision metal forging gave society a taste for learning about and conquering the forces of nature. Medicine gained confidence with every new step forward. A subtle shift occurred in the traditions of pregnancy and cchildbirth. Home births and midwifery became percieved as archaic and only for the backward lower classes. Birthing stools, standing and squatting while giving birth did not run concurrent with the emerging image of the refined middle class lady. The Victorian obsession with cleanliness and health caused home

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births to be viewed in a somewhat barbaric light. The scientific discourse of the early 1800's supported hospital births as the only viable option.

"One indication of womens' desire for gentler, more sentimental births was the shift to the bed from the birthing stool. The 19th Century bourgeoise definitely preferred the bed regardless of their own personal comfort. It was, however, in England that birthing in bed first established itself among the middle classes". (Shorter, 1972, pg.149).

The shift from choosing their own birthing position to compulsory births on their backs was significant in the history of reproduction and science. This was not to be the only area where 'science' defined the needs of the mother on her behalf.

One welcome form of technological intervention was the implementation of ether and chloroform during the 1850's. Before this time the only form of pain relief for labouring women was in the consumption of vast quantities of alcohol. Doctors did not always support this form of pain relief as a woman in a drunken stupor was in no condition to assist with the delivery. Then, in 1847, two new drugs were used for the first time during surgical operations. These drugs were found to induce unconsciousness but did not supress That it wasn't used until 1853 was due to a pain. religious belief. In the bible God punishes Adam and Eve for eating the fruit of the tree of knowledge. As they leave, God further punishes Eve for tempting Adam. "thus God chastised Eve, I will multiply your pain in childbearing. You shall give birth to your children in pain". (Genesis 3:16).

Women were supposed to suffer pain in childbirth as a consequence of original sin. On the suggestion of the implementation of chloroform during childbirth, there were shouts of "heresy" from Churchmen. Attitudes changed dramatically when, on the birth of her last baby in 1853, Queen Victoria was administered chloroform by her doctor. This secured the place of chloroform in obstetrics for over 100 years, at which point the potential side effects of chloroform were



discovered and it was replaced by more modern drugs. By the 1900's doctors who would not use chloroform or ether found themselves losing their patients to doctors who would. Said a London doctor in 1920;

> "The abolition of pain and fatigue will always create a demand for service. The novice must emulate his competitor or starve" (Shorter 1972, pg.147).

By the late 19th Century 'science' and 'progress' Men had moved firmly was continuing the onward march. into the world of business and commerce. To the Victorian mind, the home began to take on the qualities of a haven, a safe secure refuge from the frightening and intimidating world of scientific progress. Consequently, the home also became the stronghold of traditional old-fashioned values. The gradual swing from homebirth to hospital was accelerated from 1900 onwards by the development of the Ceasarian section. Both this, and the reduction of the fear of post delivery infection (due to increased knowledge and improved conditions regarding the nature of infection) meant that by 1930 over 67% of births in Britain took place in hospitals. (Shorter, 1972, pg.73). By this time pregnancy and birthing were begining to accumulate the battery of proceedures and treatments characteristic of the late 20th century. Intervention, in the form of anything which would speed up the birth was readily accepted, (for example, the use of forceps). By this time the needs and wants of the mother were overshadowed by the desire of the doctors for a quick and trouble free delivery. In 1917 it was found that it was much easier to successfully deliver small post-term babies than larger infants. The doctor credited with this discovery, James Vorhees (A New York practitioner) advocated a dietery routine for pregnant women, which cut down drastically her consumption of carbohydrates. This ensured small, underweight infants, but also consequently, weak, listless mothers. He also practiced the induction of labour before term by dosing the mother with castor oil or by inserting a rubber bag into These premature, underweight infants were easy thes uterus. to deliver but tended to be sickly and prone to infantile infection and disease. Unfortunately, obstetricians who



were quick to adopt Vortree's methods, did not concern themselves with the problems of infants after delivery (having measured their success by the number of successful deliveries)

In the past 200 years childbirth in Europe and America has changed from a home based activity, undertaken primarily with the assistance of female helpers and friends, to an activity defined as the province of medical professionals. Not only childbirth, but the whole experience of female pro-creation from fertilisation through to gestation and on to birth, has become so high-tech as to transport them from the realm of "womens' experience" and into the realm of science fiction. The next four chapters will take a look at these technologies which have been designed to intervene in the process of human reproduction. They fall, roughly speaking, into four groups. The first group covers the area of 'management' in labour and childbirth, and embraces a wide range of technologies for the monitoring and control of the progress of pregnancy and labour. The second group includes the scientific breakthroughs over the last 20 or 30 years. regarding fertility control through contraception. The next chapter explores the conceptive techniques, directed at the promotion of pregnancy through techniques for overcoming or bypassing fertility. The fourth group, probably the most contraversal, deals with the various genetic and eugenic areas of research which will, when implemented, carry significant implications for women in relation to reproduction.



CHAPTER TWO

TECHNOLOGIES FOR CONTROLLING LABOUR AND DELIVERY

The extent of the shift from homebirth to hospitalisation is illustrated by the rising proportion of British babies born in hospitals. (From 15% in 1927 to 99% in 1985). In its wake, a range of technologies for monitoring and controlling the progress of labour and delivery have been applied on a basis which has shifted from the realm of extreme necessity into routine use. These technologies include instruments to assist delivery, (for example, forceps), Ceasarean section, methods of inducing labour (e.g. Episiotomies and Epidurals) and techniques for neasuring foetal heart rate and movement. The percentage of births which ended in a Ceasarean section in the U.S. rose from 4.5 per hundred in 1965 to 19 per hundred in 1982. (Stanworth, 1988, pg.227). There has been however, a levelling off in the number of Ceasarean sections over the last five years, due in the most part, to objections to "hi-tech deliveries" from women themselves. The identification of the birth experience (as one which can be enjoyed as a process in itself, set apart from that of producing a child) has led to a heightened self-awareness among women. Many women centered organisations and groups exist which seek to highlight "birth" as a powerful expression of female identity. Alternative births, for example, births carried out under water, have, in some instances, been chosen by women with only the extremely necessary amount of intervention from doctors. However, when it comes to carrying a child to term and giving birth, few women in Western countries feel able to do so without relying on a battery of pre-natal tests, hospital delivery and intensive post-natal monitoring. In contemporary society "health" is an issue which has almost reached the super fetish extremes of the late Victorians. This technolical dependence on the part of reproducing women is not groundless. Many activities such as drinking alcohol



taking drugs or smoking while pregnant have now been conclusively linked to low birth rates in infants, stunted growth in children and bone and dental deficiencies in young adult. Toxic chemicals in the environment and the ground water can cause harmful side effects if indested during pregnancy. Many birth deformities (such as Downs Syndrome) have been linked with high levels of radiation in the atmosphere. High mercury levels in water can cause spontaneous gene mutation and brain disfunction in unborn Quite naturally, whomen feel compelled to children. reassure themselves as early in the pregnancy as possible regarding the health of their children. These insecurities are further reinforced by the medical profession. Doctors and nurses are trained to perceive pregnancy as

> a deeply dangerous medical condition fraught with the possibilities of serious lifethreatening problems for both the mother and the baby, all requiring quick medical and technological intervention. (Collard 1988 pg.113).

A normal birth free of complications is viewed almost as a negative event, despite the fact that the vast majority of births (93%) are trouble free. Add to this the contemporary social implications of producing a less than "perfect" child and one can easily see how women have come to view pregnancy as a pathological and a medical event.

For the women who refuse to adhere to notions of "compulsory" hospitalisation, the road is not easy. By refusing tests, pre-natal screening and so forth, they must face the disapproval and the "blame" if something does go wrong. As one women who choose to have her baby at home puts it,

> You have to accept that if anything goes wrong, even if it is something that would have gone wrong in a hospital, even if it is something like a birth defect, if you have the baby at home everyone will blame you (Collard 1988, pg.113)

But supposing a doctor, after screening, does discover a defect? The options range from termination of the pregnancy to strict gestational supervision and the



possibility of a Ceasarean birth. If the parents do not wish to terminate a "critical" case, for example a severely brain damaged child, provisions can be made in advance of the birth for its care and well-being along with advice and counselling for the parents. The other alternative (as yet to be perfected) is the genetic repair of the embryo. This is a subject which I will deal with in a later chapter.

The moral and ethical implications regarding the rights of a child found to be less than perfect are beyond the scope of this thesis. I do not presume to make a pronouncement of any kind on the merits of screening in early pregnancy from a "human rights" standpoint. Suffice it to say that while I do not object to the way in which these technical procedures endeavour to eliminate worry and contribute towards a better quality of life, I do object to the means by which they exist and the way in which they are implemented into our social and medical discourse. As it stands, women are compelled by prevailing social trends, "pro health" propaganda and concern for the well being of the feotus, to place their bodies into the hands of the medical profession. In this climate doctors and scientists assume the mantle of demi-Gods, saviours of humanity. The need here, I believe, is not for the elimination of these technologies, persea, rather the refinement of how they are used and by whom. Fifty years ago, if a woman suspected she was pregnant, she relied on the medical profession for early confirmation or "diagnosis". Nowadays, home pregnancy testing kits are being confidently and competently used by women. Surely the scientific community could extend itself beyond merely perfecting these technologies and endeavour to refine and adapt them to a form which could be used by the women themselves.



CHAPTER THREE

CONTRACEPTION AND FERTILITY CONTROL

Many of the technologies used in fertility control, diaphrams, inter-uterine devices, sterilisation and abortion have been around for centuries. However, diaphrams and I.U.D.'s were difficult to come by before mass production in the early 20th century rendered them They were not considered either popular or available. reliable as they needed to be inserted by a doctor (most women did not possess even the rudiments of knowledge Incorrectly inserted or regarding their own anatomy. neglected once in place, they could cause irritation and infection which could lead to infertility. More recently, mis-use of contraception has been linked to cervical cancer. Before the development of the hormonal contraceptive pill, the only fully reliable form of contraception was abortion and that was not considered a viable option for child rearing forty year olds, as it was dangerous, expensive and illegal. Abortion was really only considered as a last resort by wayward girls and unmarried servants. Historically, abortion consisted of a series of traditional procedures starting with the more harmless techniques of hot sitz baths and castor oil, and moving up to the more dangerous ones, such as external trauma, binding and instrumental abortion. Due to medical ignorance up until the late 19th century abortion was always a risky business and not always successful. Natural contraception was a pointless endeavour as a woman was considered the property of her husband. Few men would tolerate any restriction of their congregral rights. Quinine, soaked on a sponge and inserted into the vagina was considered effective, as was vaginal douching, but realistically speaking, these techniques did not meet with much success (Shorter, 1972, pg. 108).

Increased knowledge and growing confidence idn the medical profession led to an igncreased usage of I.U.D.'s and diaphrams towards the end of the 19th century. The



Women's Liberation Movement was opposed to contraception at this time, as they feared it would allow men to force even more sex upon their wives and to indulge in extra marital sex with greater impunity (Richardson 1993, pg.76). While the Womens' movement was concerned with the way in which womens' lives were controlled by "male lust", they sought to change sexual relations between men and women. Their proposed solution was not the liberation of women from the "shackles" of their own fertility, but rather in the curtailing of male sexual contact, hence the slogan "votes for women, chastity for men" (Richardson 1993, pg. 79).

The reproductive rights agenda for the Womens¹ movement in the late 20th century had changed dramatically the most significant causes being the development of the hormonal contraceptive pill and the sexual revolution of thge 60's. The liberation of the 60's and the enlightened * social climate of the early '70's, meant that by the end of the decade women had identified "control" over reproduction as a key factor in patriarchial control over production and the subordination of women. The movement was initially uncritical of innovations in the area of contraception, indeed it was hailed as advantageous to their struggle in gaining reproductive control. They welcomed "the pill" as a means of achieving sexual equality and the elimination of the emotional trauma arising from the fear of unwanted pregnancy.

It wasn't until the 1980's that the adverse health implications became apparent. The "pill" and I.U.D.'s now appeared to carry warning health risks and a range of distressing side effect. It was found that the hormonal contraceptive pill can lead to weight gain, high blood pressure and harmful fluctuations in the body's natural hormone levels. Diaphrams have recently been linked to cervical cancer and I.U.D's, where incorrectly used, can lead to infertility. For women infertility most commonly



results from a blockage or abnormality of the fallopian tubes. The scarring of the delicate tissues of a woman's reproductive system most often results from "pelvic inflammatory disease" (P.I.D.) which is caused by abrasion and infection from I.U.D's. Undoubtedly, the demand amongst hetrosexual women who wish to avoid pregnancy, for a 100% reliable contraceptive technique which carries no risks to health or quality of life, are enormous.. Technological advances over the last twelve years or so have provided them with the following less than satisfactory options:

- 1. The hormonal contraceptive pill, which I have already mentioned is taken for a number of days each month. It ensures that the newly conceived embryo does not attach itself to the lining of the womb.
- 2. Long acting hormonal injections which ensure the same frustration of the cycle of pregnancy.Depoprovera, to which I shall refer later, comes under this heading.
- 3. Hormonal implants which last up to five years.
- 4. Hormonal abortifacantents such as the "morning after" pill, which is taken <u>after</u> unprotected sexual intercourse.

None of these options are free from adverse health implications. Hormonal injections and implants do efficiently prevent conception but the side effects, where recognised, are not pleasant. (I say "where recognised" as these are, as yet, fledgling technologies, and potential side effects may, like those of the pill, take years to manifest themselves).

Some women have latched on to the use of such contraceptives as a means of achieving some manner of sexual equality. However, before one can consider this as a viable option, it is necessary to explore the contemporary



"availability" of contraception. Safe contraception may liberate women from the stresses of unwanted pregnancy but at what age does a woman become sexually active? Should young girls be issued with contraceptives at the onset of menstruation (11 to 14 years) Does this not merely make young women more likely to be promiscuous and more easily available for intercourse? In Britain, the recent "Gillick" case represented an attempt to restrict, through the courts, the access of younger women to existing contraception information and supplies (Stanworth, 1993, pg.230).

More alarmingly, we see idealogical/social forces at play regarding the availability of contraception, Controversial contraceptives such as Depo-provera are licenced in Britain and tend to be issued to socially velnerable women during programmes dealing with over population in povertystricken areas. Women deemed not sufficiently reliable to competently use other methods of contraception, working class women, black and asian immigrants, women in prisons, etc. are often groups targeted for depo-provera campaigns. As part of a programme to combat overpopulation in Southeast Asia and China, compulsory sterilisation has been replaced with injections of depo-provera and the use of the above mentioned implants. These implants contain the same hormones as both depo-provera and the hormonal contraceptive pill, and the treatment consists of the surgical implantation of small rods containing the hormone into the upper arm. These rods are biodegradable and overtime leech controlled quantities into the blood stream. They cannot be removed without surgery and can be effective for up to five years. This particular contraceptive device has been tested on women in Latin America and Asia and has been accepted for use in the U.S.

Compulsory contraception is being used Worldwide on women deemed unfit to become mothers. Women in mental hospitals, those with severe genetic handicap, and women in prisons all fall into this category. Who is next on the list?


This may seem a little extreme, but with State and Government funded scientific and medical gatekeepers, it is not difficult to imagine groups such as lesbians, and single women joining the ranks of the socially disadvantaged on the "compulsory contraception conveyor belt". Does contraception not only reinforce the pressures on women to become mothers, but also only when it is socially accepted to do so? How can any institution claim to be facilitating free choice for women through providing contraception when programmes exist to administer that contraception on a large scale to "disadvantaged" groups of women? And what of the millions of pounds and vast quantities of time and effort being pumped into research into the problems of conception and infertility? This contradiction makes about as much sense as pumping millions of pounds into hospital care and medical expertise on one hand, and into weapons and instruments of war and destruction on the other.

Andree Collard puts it in her chapter "Life with Father" (From her book 'The Rape of the Wild')

> Artificial infertility kills the autonomy of female being just as surely as artificial fertility. Both are interdependent aspects of the same attempt to control production and reproduction. (Collard 1988, pg.110).

If women, in order to reproduce, remain dependent on the controlling technology of science, how then can science define "natural biological reproduction" as the only viable form of female procreation?



CHAPTER FOUR

CONCEPTIVE TECHNOLOGIES

For much of this century the treatment of infertility has remained relatively static. The first major breakthrough was in the introduction of artifical insemination in the 1930's, and the fertility drugs of the 1960's. Then, in the late 1970's, in-vitro fertilisation burst upon the scene as the "miracle cure". In-vitro fertilisation (or I.V.F.) takes place outside The female candidate is administered with the body. hormones which cause her to super ovulate (that is, to produce spontaenously several ripe ova or eggs) The eggs are then collected using various techniques and placed on sterile cultures in petri dishes. The dishes contain all the prerequisites for fertilisation to take place (correct temperature, moisture levels, etc.). Sperm from the male candidate is then introduced to the dishes, usually five, and fertilisation occurs. Not all the dishes, if any, will be fertilised. A candidate from the embryos is selected and surgically implanted into the fallopian tube of the female candidate. The "spare" embryos are frozen and can be used in the case of the female rejecting the initial implantation. If pregnancy occurs the other embryos may be frozen to be used in further pregnancies or can be used by scientists for experimentation for up to fourteen days after fertilisation. After the birth of the first in-vitro (or test tube) baby, a veritable barrage of conceptive technology directed at the promotion of pregnancy through overcoming or by-passing infertility followed suit. Britain set up the first Governmental committee world wide to consider these new developments in conception and how they might be regulated. The U.K. "Warnick Report" of 1984 focused on the following techniques and processes:

1.

Insemination by a donor (A.I.D.) is a simple procedure in which sperm is introduced into a woman's vagina as close to her cervix as plossible.



In-vitro fertilisation, which I have already described, a variation on I.V.F, is G.I.F.T. (Gamete Intra-Fallopian Tube Transfer) with the eggs and sperm replaced into the fallopian tube so that fertilisation takes placed there rather than in a laboratory dish.

2.

- 3. Egg or embryo transfer occurs when a woman receiving the ova or the embryo is not the same woman who provided them.
- 4. Surrogacy involves a woman entering a contract to produce a child for someone else. She may be subjected to a number of interventions, such as artificial semination, super ovulation and I.V.F. and may use her own eggs or those of another woman.

Before I explore these techniques in further detail I would like to take a brief look at the pressures on women to mother, which have led to the development of so many "corrective" technologies.

The choice to become a mother is one which cannot be simply regulated to social conditioning or patriarchial manipulation. There are pleasures and rewards to be gained from choosing motherhood. I have already mentioned the "birth experience" as a potentially powerful and invigorating expression of femininity. After the birth. while the practice of mothering, child care and its associated tasks can be difficult, they can also be exciting, rewarding and emotionally stimulating. A mother not only gives but also receives unconditional love from her infant. She stands to gain self worth in the role which includes the power, responsibility, satisfaction and independence that childrearing brings.



It cannot be denied, however, that within contemporary social discourse one can find incentives towards motherhood which have little or nothing to do with a woman's relationship towards a child. As Ann Oakley puts it -

> The need to mother owes nothing to women's possession of ovaries and womb and everything to the way in which women are socially and culturally conditioned to be mothers. (Tang, Ch. 7)

Mothers are oftened portrayed as having a mysterious and mythological status. "Only women are granted this status and it is one to which all women are expected to aspire" (Lauder, 1984, pg.73)

The word "mother" evokes a certain reverence in popular culture. We use the term to confer qualities and ownership or a sense of belonging, (e.g. mother country and mother nature). Being pregnant does not ensure the conferring of these qualities onto a woman, as a pregnant woman is merely "expecting". As a social institution, motherhood is a position which is often percieved as being powerful and influential. The day to day realities, however, often fail to match this "perception". Motherhood is a challenge although 'potentially an enjoyable one (it is) hard work and routinely stressful'. (Nicholson 19 _ pg. 201)

Motherhood is seen by many cultures as the ultimate female destiny. Motherhood is often percieved as being a biological and physiological imperative. "Maternal instinct" is believed to exert pressure on women, at a certain time and position in life, to reproduce, for example, women feel the need to become pregnant and have a family before the onset of menapause. These pressures are almost certainly culturally induced. Women who choose not to become mothers, while often regarded as having failed in some way as women, or as being unfeminine, lead happy, fulfilled lives. Achievements and pleasure gained from outside motherhood are, however, often regarded as condemned within the patriarchy as substitutes for normal femininity. As Michelle Stanwarth puts it :



How can the experience of women who have chosen to remain child-free be fitted into a framework which sees the continuous biological process that culminates in birth as the core of our identity as women?

How can we make sense from this perspective of women who value children and childbearing highly but who experience pregnancy itself as merely an unpleasant reality en route to raising children?

(Stanworth 1993, pg. 233)

In such a social climate how are women expected to percieve and adapt to female infertility?

In the book of Genesis "Rachel, seeing that she herself gave Jacob no children, became jealous of her sister Leah who had given him four sons and she said to Jacob, 'Give me children or I shall die'".

Historically, women despaired of their own infertility because their value in the eyes of their husbands and other women lay in their ability to produce sons. Today, failure to procreate can cause the same anguish but in relation to the loss, not only of her children, but of the one preconditioned right of passage which defines her as a successful, feminine woman. Infertility, in today's society, has come to be viewed not merely as a regretable medical condition, but as an obstacle to a woman's ultimate destiny. A couple may be infertile but a woman is "barren". As put by Andree Collard

> The language of futility and despair is tame by comparison with the emotional language that today surrounds infertility. Women are manipulated to fear barrenness as the cruel and unyielding enemy, the "sadest epidemic" which rips the core of the hetro-sexual couple's relationship, damaging sexuality, self image and self esteem.

(Collard 1988, pg.108)

It is easy to comprehend how conceptive technologies and fertility treatmensts are so readily welcomed and accepted as soon as they become available.

Another factor in the ready implementation of the fertility treatments is the fact that human infertility is on the increase. I have already mentioned the misuse of



contraceptive devices as a common cause of infertility in women. Venereal disease is increasingly causing infertility, with such ailments as chlamydia and ghonneria as the main culprits. (Interestingly enough, venereal disease is reputedly on the increase among women due to the sexually liberated attitudes brought about by the advances in contraceptive technology) Male defeciencies are the cause of a couple's infertility 40% to 50% of the time with a low sperm count as the most common diagnosis. A low sperm count means that an affected male has fewer sperm per fluid ounce of semen than his healthy counterpart. The sperm he does posess is also less healthy ("on crutches" is the common term). This greatly reduces the odds of conception. Nutritional defectencies in semen leading to a low sperm count, has been linked with the proliferation of toxic chemicals in the environment and high levels of "stress" which can also affect libido. As with the blockage of the fallopian tubes in the woman, I.V.F. is the recommended treatment for males with such problems wishing to procreate. The obvious benefits of I.V.F. and its associated technology are not to be taken lightly. However, when considered in association with genetic engineering and "eugenic" technologies (which I will discuss in the next chapter) I.V.F. takes on implications other than those associated with childless couples.

I have already mentioned that during an in-vitro fertilisation pregnancy a candidate is chosen from five or more embryos. This selection is neither based on the first conception or random choice. In the case of more than one embryo the candidates are screened prior to insertion. This test known as Amniocentises, serves two purposes. It has the potential, although not perfected as yet, to identify certain genetic conditions or defects. What this test does conclusively determine is the sex of the embryo. Implanting the desired sex only achieves sex selection. This screening



is accepted in Britain where it is justified as medically necessary in the elimination of certain genetic conditions. In India and China the test is carried out (on pregnant women also) and selective abortion or implantation of the desired sex only occurs. This is widely practiced for social reasons in order to achieve male children rather than female. Cruder efforts at this are common worldwide. India and China both have a long inistory of female infantcide as a matter of course, either through abortion after amniocentises or immediately after birth by drowning, suffocation, poisoning and desertion of baby girls. (Collard 1988, pg. 117) In her book "Rape of the Wild" Collard quotes from a report written by a Doctor Michael Weisskopf

> In China official population statistics indicate a loss of more than 230,000 baby girls in 1981, a casualty list that is said to have grown dramatically in more recent years.

(Weisskopf, "Killing Daughters" Newsday, 13 Feb.. 1985, From Collard 1988, pg. 117)

Treatments for infertility manifest themselves in today's society as "fertility clinics". These clinics exist as both State funded and commercially run, but the vast majority, certainly those with a high public profile, are those with profit on the agenda. They campaign and advertise by use of open days, newsletters and support groups.(Needless to say, women rarely receive counselling on how many women have led a fulfilling life without producing their own child). The treatments tend to be very expensive and access is usually limited to those who can afford to pay. The State funded fertility services usually only exist as a "potential" treatment in the section of health care given over to dealing with problems of over population, and the adverse effects of repeated pregnancies. These problems, as I have already mentioned, tend to be combated by way of mass programmes of contraception in poor socially disadvantaged areas. It is interesting to note



that while the incidents of infertility in women is highest among socially disadvantaged groups, (due to poor diet and mis-use of contraception etc.) State subsidised in-vitro programmes have received virtually no public funding in Britain. However, the Department of Health and Social Security view the possibility of mass programmes of ant 2-natal screening in the hopes of saving money on the care of handicapped children (Stanworth 1993, pg. 228).

One may view the I.V.F. procedure as one which potentially stands to liberate women from the need to seek out "fertile, impregnating males", but in the hands of the scientific profession, how can it be viewed as advantageous to women?. These technologies merely reinforce the belief in reproduction as the "ultimate female destiny" (but only when she is deemed "fit" to be a mother). Women who don't fall easily into the category of the "acceptable candidate" find it difficult to gain access to these treatments. Here again, lesbians, virgins and single women wishing to mother, come across obstacles as real as the financial roadblocks encountered by the socially disadvantaged and poor ethnic minority groups.

The "life engineers" (Collard 1988, pg. 108) take control of the female procreative process supposedly to help women in distress, wishing to be "mothers". But procedures such as egg donation and embryo transplantation achieve only confusion about the definition of the term "mother". Is she the woman who produces the egg, the one who gestates the foetus, or the woman who raises the child? If these ambiguities can be successfully dealt with in contemporary society (and I assure you they already are) why not concepts such as ovarian transplants? Research and development in relation to the repair or transplantation of damaged fallopian tubes is not a high contender on the reproductive agenda. Why do all viable forms of infertility

treatments have to take place outside the body? For that matter, why is adoption rarely considered a viable form of overcoming fertility problems? If society insists on a woman producing by any means possible her own "natural" and biologically related child, why then does it tolerate such a child to be conceived in such an unnatural location as a plate of agar jelly in a lab? How can we accept a child as naturally "biologically related" when its sole existence depended on the careful manipulation by the gloved hands of a biologically unrelated whitecoated man of science?

CHAPTER FIVE

GENETIC TECHNOLOGIES

Educated as we are in the history of technologies for controlling fertility, pregnancy and birth, how are we to analyse the emergent technologies which seek not to correct fertility problems nor to control fertility, not even to intervene in the birth of the child, but to control and engineer life. What is it about genetic engineering and eugenic practices which sparks off such a multitude of debates? Womankind has had the capacity to create (if not to control the creation of) life since the dawn of time. Do we fear non-uterine procreation simply because it is unknown? Or is it the notion of scientists as omnipotent, desexualising humanity and creating nurseries in laboratory test tubes?

This theory has not been taken from the realm of science fiction. Some "genetic counselling" practices are already being implemented (the selection of embryos during I.V.F. for example). Others, which have not yet received approval in the U.K. for their use on humans include :

1.

2.

Transgenesis involes mixing the genetic material of different species.

Cloning deals with the splitting of the embryo into seperate cells at the moment of conception producing genetically identical individuals.

3. Sex Predetermination where the desired sex can be obtained prior to fertilisation.

4. Ectogenesis involves conception and pregnancy outside the womb.

Genetic Counselling of adults and diagnosis of embryos are practices involving the identification of chromosomes or genes believed to be defective, and assessment, advice or selection-based traits or individuals. The possibilities for the genetic manipulation of humans will naturally be of direct relevance in the transformation of human reproduction. This is a multi-National multi-billion dollar race to conclusively identify and record the chemical composition of the hundred thousand or so genes that make up each individual.

5.

As I have already mentioned, the plausibility of these technologies being implemented today or tomorrow is difficult to concieve. Fifty years ago the notion of organ transplants or "I.V.F." would similarly have been treated with a degree of disbelief. One must consider the vast quantities of time, energy and money being spent on research into genetics. The very existence of "genetic" courses within the science faculties of most Universities worldwide (U.C.D. and T.C.D. in Ireland) displays a willingness of the part of the State to place confidence in the eventual refinement to human use of these technologies.

Cloning is already taking place on a non-human commercial level. Mammalian cloning was successfully documented in 1981. It takes little imagination to fully realise the commercial profit which stands to be made in the region of commercial production via cloning (for example, from one selected embryo an animal breeder could produce a strain of high milk producing female calves of equal quality). Its implication for women in terms of reproduction are potent. Though the human application of cloning is, at this point, the least refined of all the reproductive technologies, it is the one which holds the greatest implications regarding the provision of a sense of omnipotence for those in the scientific profession.

But how, in human terms, could cloning possibly be validated as acceptable? The following is a quote from Andree Collard's "Rape of the Wild". It records a section of a discussion on the attitudes towards cloning of contemporary bio-chemist, Joshua Lederberg.

> (Lederberg) hopes that 'we can clear up many uncertainties about the interplay of heredity and environment, and students of human nature will not want to waste such opportunities', at the very least he says that we should 'enjoy being able to observe the experiment of discovering if a second Einstein would outdo the first one'. Lederberg sees no reason why an entire clone cannot be grown and kept in storage against the day you have a medical problem. 'Free exchange of organ transplants with no concern of graft rejection'.

(From "Who Should Play God" Howard & Rifkin, Collard. 1988, pg. 119-120)

If indeed Clones were to be used as storage banks for transplantable organs where does the 'mother' stand in the equation. After centuries of conditioning on the "traditional notions" of "biological motherhood" and the value attached to the production of your own biologically related child, a speedy rethink and redefinition of the notion of "motherhood" is in order. How otherwise could a woman tolerate one individual child (resulting from the division of an egg taken from her body) being selected over the other as the potential doner, and frozen (or whatever). The only acceptable course of action would be in the anonymous donation of eggs on a financial basis. Once a large number of eggs are collected, those with the most advantagous traits could then be cloned into a battery of egg producers, whose eggs would then be fertilised by the desired sperm and the offspring then cloned without either the emotional baggage or the enraged outcry from the "mother".

The deconstruction of the "mother" will become necessary to some extent if any of the genetic technologies are to be implemented, patricularly in the case of ex-utero gestation. Here humankind is at risk of falling into the

trap of the "controller's propaganda" which claims that "losing nature is desirable because her offspring is less viable, less healthy, less efficient than the reconstructed products". (Collard, 1988, pg. 114) Urging women to take control of reproductive technologies as weapons in the fight/for their liberation from patriarchial rule is a futire and pointless endeavour. No matter who holds the strings, does the shift from mothers as egg producers and incubators, over to science as the viable form of procreation, simply free women so that they may become better men? Does this not also facilitate "womb envy" and patriarchial desire to reassert itself in the procreative process?

Ectogenesis is a particularly emotive double edged sword. Developements in ecogenesis have brought about the "incubator" in which an infant can be placed after a premature birth. An infant can be placed in an incubator after only four months in the womb. The percentage of deaths of infants after premature birth has dropped dramatically since incubators first began to be used in the late 1960's. Given the choice, how many women would refuse ex-utero gestation on ethical grounds in the light of potential child-carrying complications and risk to her infant? How many fathers would protest the removal of a live foetus from the body of a critically ill, or clinically dead woman? A very hazy line exists here and the moment to fear is the one in which the line is crossed. This "line" seperates extreme medical necessity from "action taken to ease the burden of childbirth on women". (My own emphasis). Taken into consideration in relation to egg donation and genetic engineering, ectogenesis is most likely the one technology which could potential act as a catalyst, accelerating the creation of a race of non-women or "psedo-men".

The implications of genetic counselling lie well beyond the scope of this essay. Basic human rights along with rights of individual ethnic, genetically disadvantaged

and socially undesirable groups stand to be severely comprised. Women stand in a position to be further "de-sexualised" by the potential of science to alter defective genes. The fact that these genes are considered "defective" implies that as a procreative device science is somehow "better" than women. Not only can science identify these genese as defects, but it stands in the position to be able to repair them in the very near future.

One of the reasons put forward as an explanation of the scientific fixation regarding genetic engineering is the "state" of the human gene pool. The calls for the implementation of embryo screening and gene repair come from concerned geneticists who have studied trends in genetic fluctuations. The problem is the fact that the human gene pool has over the last two hundred years or so become "polluted". The incidents of genetic disorders such as diabet is and haemophilia have increased worldwide. Historically speaking these disorders occurred due to spontaenous gene mutation and were few and far between. The defect was rarely passed on as an individual would seldom live beyond childhood and into his or her reproductive years. Nowadays, not only life span but also quality of life has been much improved. Treatments for genetic defects (such as insulin administration in diabetics) have led to afflicted individuals living full and useful lives as contributing members of society. They do, however, also now possess the potential to perpetuate the defect in the gene pool by passing it on to their offspring. Although controllable, genetic disorders do require treatment which can be expensive, traumatic, and not always successful. The possibilities of eliminating these defects through genetic restructuring along with dispensing with the necessity of post amniocentesis termination where a defect is identified, are without a doubt desirable. Debates on the feasibility of the implementation of genetic engineering tend to focus their attention on the rights of

the potentially defective population and on the awesome responsibility of drawing up a criteria of desirable, acceptable, and non-acceptable traits/ individuals. The women's issues in this debate are not unrecognised, merely lost, in the huge turmoil of emotion sparked off by the potential implications for humankind in general.

CONCLUSION

No one wishes to return to the days when women experienced reproduction unaided by medical science. Childbirth, historically speaking, was a potentially risky procedure before the intervention of medical science. I do not wigh to putd forward the view of all aspects of scientific intervention in reproduction as simply elements of a complex conspiracy aimed at undermining the status of women. What I do suggest, rather, is the restructuring of the contemporary birth experience inspired and motivated by the more positive aspects of a woman orientated traditional birth procedure. We may convince ourselves that the risk historically associated with childbirth has been eliminated for the better, but has it nmot simply been replaced by the new trauma of contemporary reproduction? How can childbearing women to-day fail to turn to medical science in order to reassure themselves regarding the health of their children? What is called for is the harmonious blending of the positive aspects of two cultures, the traditional woman-controlled birth and the contemporary scientific reassurance and aid placed into the hands, not of women in general, but of the individual woman giving birth.

One of the largest discrepancies to evolve in the area of reproductive research has been the failure to develop a contraceptive technique which is both 100% evfective and does not, in any way, compromise womens' health. One cannot even begin to discuss contraception as a liberating device until the adverse implications to health have been addressed and solved. Woman cannot even begin to consider contraception as an aid to the women's movement until all women have equal access to its positive benefits. Depo-Provera administration programmes and other contraceptive or sterilisation based "solutions" to the problem of overpopulation may, in the short term, appear viable.

But in the long run, these methods blatently ignore the cause of the real problem. "Overpopulation" is not a term which relates to "accelerated rates of childbirth" as much as it is a term referring to the problem of "not enough food". Rendering women infertile does little to erradicate the problem of over consumption and greed on behalf of the first world. Mass administration of contraceptives may temporarily ease the problem but how can the curtailing of female reproductive rights solve the problem of a massively imbalanced distribution of natural resources and national purchasing power.

It is extremely difficult to present a critique on a technology which is hailed by many as the "miracle cure" for the "distressing condition" of infertility. In the same vein, how can one critisise heart surgery or blood transfusion? One must look beyond the image of the blissfully happy couple with their miracle child. Objectively speaking, the mother has a real place in society. Her deconstruction (and consequential reconstruction) can only serve to undermine the women who realistically endeavour, in the realm of childbirth and child rearing. If motherhood is to be reconstructed let it at least be the mothers who set the criteria (awarding it more status, for example) otherwise women who choose to mother will need to undergo a further reshuffle of ideas and values in order to accommodate patriarchial "progress". Mothers in patriarchial society have been case in a very rigid mould. Fifty years ago the notion of a mother allowing her child to be transplanted and carried by another woman would have provoked cries of Can we continue to tolerate the way in which outrage. science chips away sections of the mould when the "march of progress" has rendered them obsolete, and recasts them to suit and serve its own needs?

As I have already mentioned eugenics is a topic which encompases debates ranging far beyond women's issues but it is important not to lose sight of women in the vast turmoil of the eugenic debate. It is a little known fact that eugenic practices were carried out on a nationwide scale in pre-war Germany. Three hundred and fifty thousand people were sterilised, two thirds of these were women. These people, blacks, Asians, people with physcological disorders, mentally and physically handicapped people and the itinerant gypsy population were sterisised by German scientists who under the influence of mazi propaganda, believed that by inter breeding Europeans, these undesirables were steadily infiltrating and destroying European civilisation. (In German, Eugenics translates as "race hygiene"). The practice of modern eugenics, that is, the selection of desirable traits in order to produce "perfect" humans again does not tackle the problem at its source. The motivation behind the pressure for its implementation is a basic inability to deal with diversity as well as with real social problems, (such as environmental and stressrelated abnormalities, and potentially, sexism, racism and poverty). It is more convenient and less selfdepreciating to select gamete doners of presumed intelligence and desired ethnicity than it is to confront one's own fears or to eliminate one's own prejudices. We believe that, at the eventual implementation of eugenics we will possess the capacity to react with compassion but in 1940 how many German scientists believed that they were preserving Wester culture and civilisation?

A pertinent point regarding the feverish research into the area of genetics is the loss of faith in the human reproductive "machine". Forgive me if I sound glib, but to me science seems to be saying "O.K., you have managed until now, but take a back seat and let the experts take over"


As a patriarchial institution, science will not severely a man's reproductive rights. His sperm will still fertilise the seed and this will still occur outside of his body. It is women who stand to be stripped of their reproductive autonomy (not to mention anatomy). One can view the loss of the "burden of childbirth" as potentially liberating, however, (to use a metaphor) how liberated is a spinning wheel in the shadow of a computerised power loom?

Women need to learn to trust their own bodies as well as to identify their needs and wants regarding reproduction. They shoud not allow themselves to be coerced into fearing female "inadequencies". Childbirth and child-care need to be elevated to a status equal to their potent implication on society. A deconstruction of the mother to some extent is called for. We need to shatter the myth of the "Divine Patriarchial Madonna". More focus should be placed on medical training based on a discourse of shared experience of motherhood and reproduction. The body of informal learning from the minds of women who have experienced motherhood, should be tapped in order to relieve younger women of the onus of being "a bad mother". Mother, as the ultimate female destiny, dependant on science needs to be deconstructed and in its place we need to reconstruct motherhood as both a woman centered and a woman controlled optional female right.

35.



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