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**Reproducing Genes:
A feminist analysis of genetic ties
in the age of high-tech parenthood**

Julie L. Singleton

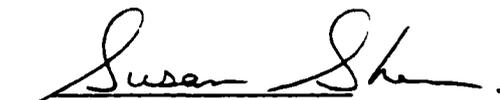
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Abstract

Reproducing Genes: A feminist analysis of genetic ties
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Julie L. Singleton

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The social construction of familial relationships in Western society tends to value the genetic relationship between parents and children. This belief has been central in assigning normative status to the genetically related nuclear family. *In vitro* fertilization (IVF) is a recent reproductive technology that allows infertile heterosexual couples the chance to create a genetically related child. This feminist analysis of the social construction of IVF reveals that the contemporary use of this technology both reflects and reinforces the dominance of the genetically related nuclear family as the normative family form. While the experiences and consequences related to IVF can be both positive and negative for individual women who use this technology, feminists have identified the privileging of the nuclear family as being problematic for women as a social group.

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Chapter One: Privileging the genetic relationship

I. Introduction

The development and cultural acceptance of assisted reproductive technologies (ARTs) has progressed rapidly. Western society, however, has barely begun to deal with the potential for social change that exists in the ever-increasing use of ARTs, and is even farther from coming to terms with the underlying social assumptions that support their rapid normalization.

Throughout the history of Western culture, there has been a desire to explain the social and biological aspects of reproduction. In recent decades, increasing scientific research in the field of reproduction has exposed a cultural fascination with the reproductive process. The reproductive technologies, as well as the corresponding practices and institutions that have grown from this research, reveal a preoccupation with the genetic relationship as an important marker in human affairs.

This preoccupation is most obvious when we examine the reproductive technologies that enable the genetic link between parents and their potential children, but it also exists in the technologies that help infertile couples have children who are not wholly biologically related to them. Regardless of the type of relationship enabled by a particular technology, the genetic tie remains a central defining point. A family will be defined according to their position in relation to biological and genetic relationships. It is my purpose in this thesis to explore current discussions regarding the assumptions about biological ties on which reproductive technologies are founded. Additionally, I will examine the history of the social focus on genetics, explore potential implications that the significance of genetic ties holds for women, and analyze particular reproductive

technologies that emphasize genetic relationships.

I focus on the centrality of genetic relationships in contemporary family forms and in the development and practice of reproductive technologies. Within this cultural environment, the genetic relationship between parents and children remains a focal point in technologically assisted reproduction. I will explore the social roots and contemporary forms of privileging of the genetic relationship between parents and children, and the importance of the genetic tie within the context of reproductive technologies. The social norms regarding reproduction become evident in the types of assisted reproduction that doctors and scientists enable and the public supports, thereby making an analysis of reproductive technologies a useful indicator of social assumptions. The issues surrounding genetic ties will therefore be addressed through an analysis of the social construction of reproduction, the experiences of people who are infertile, and the current practice of *in vitro* fertilization.

Within the introductory chapter, I outline a few perspectives of the history of Western discoveries concerning the biological tie between parents and children. I present a picture of Western society as one which strives to provide new explanations for human physiology and behaviour and then implements changes according to the newly discovered knowledge. This pattern is evident in society's reaction to scientific discoveries that provide new explanations for reproductive physiology, a point which will become apparent as I examine various historical and modern explanations of the biological process of reproduction and its effect on cultural norms. As the family is the

ial arena most affected by changing notions regarding reproduction, I also examine the genetic tie in relation to contemporary ideas about family formation.

Chapter Two explores how these modern norms of family formation contribute to the social construction of infertility and help create the desire to use ARTs (Franklin, 1990, 1995; Lasker & Borg, 1987; Pfeffer, 1987; Sandelowski, 1990; Woollett, 1991). I outline common experiences for women and men who are going through infertility, and how ARTs affect these experiences. Within the context of infertility, ARTs shape the decisions available to infertile couples and have the potential to alter social norms surrounding parenthood. However, the structural and institutional effects of racism, classism and heterosexism limit access to ARTs. Thus, the practices of the reproductive technology enterprise will be analyzed in relation to the effects they have on infertile couples and the ways they limit the options available to many people who experience infertility.

The third chapter asks how specific reproductive and genetic technologies reflect the privileging of genetic ties in the formation of families and what this relationship means for Western social conceptions of family. I approach this question by analyzing the assumptions and implications evident within the development and the practice of *in vitro* fertilization (IVF). I will argue that the perceived objectivity of scientific endeavours is false; rather, the social context within which scientists exist is evident in the technologies they develop and the type of medical care they promote (Hubbard & Wald, 1997; Keller, 1995; Lippman, 1993, 1998; Mitchinson, 1998; Rothman, 1989, 1998; Sherwin, 1998; Stabile, 1994; Wajcman, 1991). My analysis of how notions regarding family are promoted by particular reproductive technologies will examine IVF and the social issues raised by this technology. I relate a broader genetic ideology and the genetic model of medicine to the development and encouragement of reproductive

technologies that privilege genetic relationships (Armstrong et al., 1992; Asch & Geller, 1996; Hubbard & Wald, 1997; Laborie, 2000; Lippman, 1993, 1998; Mitchinson, 1998; Rothman, 1998; Shanner, 2000; Sherwin, 1998) . My analysis places IVF in its context within science, technology, and medicine, and considers how the social views regarding reproduction shape the development of this technology. As well, I will examine how IVF both shapes infertile people's experiences of reproduction and is used to reinforce the dominant social norms of families and procreation.

Although the issue of genetic relationships is central to many reproductive technologies, it is rarely analyzed in any depth, and the presence of a genetic tie is largely assumed to be an intrinsic part of creating a family. Since the genetic tie is often taken for granted, it is useful to examine this relationship within the context of social phenomena that fragment reproduction to the extent that the genetic tie becomes one piece of the reproductive puzzle. In their fragmentation of procreation, reproductive technologies expose the genetic relationship as a central aspect of reproduction and family formation. Since the genetic link is both the starting point and the keystone around which the rest of the pieces are placed, it can tell us a great deal about the ideas of the people working on the puzzle.

My analysis throughout this thesis draws primarily on feminist sources. Feminists from a variety of theoretical perspectives have examined reproductive technologies and their effects on women, and many have made important contributions to the discussion of reproductive relations. Diverse feminist perspectives have also been used to analyze the social construction of reproduction, family structures, infertility, genetics, and the effects of science, technology, and medicine on the social status of women. I will make use of a

variety of feminist theoretical works and will situate my analysis in the frameworks provided by multiple feminist perspectives. Throughout, my feminist analysis will maintain a focus on the experiences and concerns of women in Western society.

II. A history of paternity and the social privileging of the biological tie

The social relations of reproduction and the family are complex and intertwined with many other social factors. Social theorists tend to agree that Western social norms regarding reproduction depend on a complex interplay of human physiology and the social meanings that most people attach to the biological processes involved. In discussions of ARTs and other issues related to reproduction, Westerners tend to take numerous biological facts for granted; but what are the origins of these ‘facts,’ and how have they affected ideas regarding reproduction? Certain theorists have described the discovery of biological paternity as a defining moment in Western social history (Engels, 1970; Franklin, 1998; Marsiglio, 1998; O’Brien, 1981). The acknowledgement that men contribute to the otherwise woman-centred experience of procreation represents what may have been the first stages of the widespread privileging of the genetic tie. The discovery of paternity, and the scant knowledge about the details of biological reproduction that initially accompanied it, helped lead to what some feminists call the “male seed” theory of reproduction, the implications of which echo still today. However, further analysis into the history of scientific discoveries regarding reproduction shows that the scientific debate around reproduction has provided disparate theories about biological parenthood (Pinto-Correia, 1997). As well, ideas about physiological reproduction have been shaped by and, in turn, have influenced particular social beliefs

about reproduction. Whatever specific ideas about procreation have arisen, they have affected social institutions in general, and the relations of reproduction in particular. Various past notions about reproduction are still visible in the current social climate in which ARTs occur. Therefore, this section traces the historical and contemporary repercussions of human reproductive consciousness and the social relations that have been put in place to deal with scientific claims regarding the different roles played by men and women in the reproductive process.

Male seed theory

The realization that men contributed biologically to the creation of their children was an important discovery. This discovery likely changed men's notions of their lives and relationships with their families. It raised issues of men's reproductive continuity, blood ties, inheritance, and fidelity that were immaterial before the discovery of biological paternity. Theorists do not know exactly when this realization occurred within Western history, but speculation is that it corresponds with the growth of agriculture which increased opportunities for human observation of domesticated animals (Engels, 1970). Marsiglio (1998) postulates that it was around 9000 B.C.E. when biological paternity was discovered. Before this time, men likely developed relationships with women's children because of their relationships with women, not because of their knowledge of paternity (Marsiglio, 1998). Some theorists speculate that the discovery of biological paternity corresponded to the transfer from matriarchal to patriarchal inheritance rules. Property and inheritance were important to both aristocrats (O'Brien, 1981) and farmers (Engels, 1970) alike, as they determined the social and economic

status influencing how a man's sons would live their lives.¹ When men began to pass wealth on to their sons, they sought to ensure that 'their' wives were having 'their' children (Engels, 1970; O'Brien, 1981). Engels (1970) refers to this as the "historical defeat of the female sex. The man took command in the home; the woman was degraded and a mere instrument for the production of children" (p. 50). While recognizing that other factors have played a role in the oppression of women, theorists such as Engels (1970), Marsiglio (1998), O'Brien (1981), and Rothman (1989) surmise that the discovery of biological paternity was essential in shaping modern social norms regarding procreation and family.

It is important to recognize that the male discovery of their biological role in reproduction involved the realization that men are both connected to and alienated from procreation. When men recognized that their act of ejaculation was related to conception, they also realized that they are separated from the creation of their children in ways that women are not. O'Brien (1981) explains that the paradox of men's role in procreation appeared with the realization that "the alienated sperm becomes the basis of paternal certitude" (p. 136); thus, the role that ties men to reproduction also signifies their estrangement from the physiological process involved. Men's biological role in the creation of a child ends with ejaculation (Achilles, 1986; Marsiglio, 1998). Women's role begins with intercourse – a fact that women discovered when the origins of paternity were realized – and extends in a very intimate biological way for nine months of pregnancy, followed by birth, and often breast-feeding (Achilles, 1986; Bergum, 1989; Michaels, 1996; Rothman, 1989). Thus, women's physiological participation involves a

longer term and more intimate relationship with their children in a way that men's biological contribution does not.

One of the explanations that may have helped compensate men in Western culture for their alienation from the procreative process was the "male seed" theory of reproduction. O'Brien (1981) outlines how ancient philosophers attempted to deal with the reality of paternity. She points out that the importance of reproduction was downplayed by both Socrates, who viewed reproductive continuity as insignificant in comparison to the creation of ideas by intellectual men, and Plato, who freely denigrated women's physical reproductive work (O'Brien, 1981). In comparison to the theories provided by Socrates and Plato, Aristotle's "male seed" theory was likely more acceptable to ancient Greek society. It was less aristocratic than Socrates', in that it applied to all men regardless of class, and instead of negating the importance of reproduction, as Plato did, Aristotle accorded men the most important role in the reproductive process. Aristotle's theory has endured and, even today, continues to shape popular notions of reproduction. According to "male seed" theory, the sperm contained the entire human being – tiny but fully formed – while women's wombs merely provided the vessel for growing men's seed (Corea, 1985; Marsiglio, 1998). Marsiglio (1998) believes that this allowed Greek men to "assuage their potential sense of alienation during their partner's pregnancy with their 'knowledge' that their sperm contained the most important aspect of life – a person's soul or spirit" (p. 37). Thus, a woman was viewed as the receptacle in which the man placed the child, and the importance of his contribution outweighed the alienation imposed by his inability to experience pregnancy. If women's seemingly more intensive contributions were actually insubstantial, then the

fact that men were missing out on the ongoing experience of gestation was of little consequence.

Even those individuals who regarded male seed theory as scientific fact had to admit that men's biological alienation left them vulnerable to women. Women knew which children belonged to them, and men had to take women at their word that no other man was the biological father of their children (Eichler, 1997; Marsiglio, 1995, 1998). Rothman (1989) believes that patriarchal kinship rules rose as a way of countering men's vulnerability by subjecting women to male control: "It is women's motherhood that men must control to maintain patriarchy². In a patriarchy, because what is valued is the relationship of the man to his sons, women are a vulnerability that men have: to beget these sons, men must pass their seed through the body of a woman" (p. 30). Sons are important to men within a patriarchal kinship system because, unlike daughters, whose children will be members of other kin groups, sons remain part of their father's kin group throughout their lives, and pass that membership onto their own sons. Since the biological father-son tie is valued within this system, men want to know that the sons they believe to be "theirs" are biologically related to them. Ultimately, men are uncertain about their status and have instituted numerous social mechanisms to ensure that women are truthful about their children's paternity (Marsiglio, 1995; Strathern, 1992).

Some feminists suggest that men's efforts to ensure their paternity has fostered patriarchal control over all aspects of women's roles as wives and mothers, resulting in patriarchal systems and ideologies that have shaped the experience of the reproductive process and the wider social beliefs around reproduction and the family. This line of argument states that men created ideologies and institutions in order to lessen their

feelings of alienation and to gain control over women's motherhood. Marsiglio (1998) and O'Brien (1981) postulate that religions based on the male god creation myth, which represented spiritual creation as a male activity, began around the same time as the discovery of biological paternity. Other theorists claim that at this time the institution of monogamous marriage arose, in conjunction with patriarchal kinship, inheritance, and descent rules, in order to sublimate women's sexual desires to their husbands' need to be assured of their paternity (Engels, 1970; Franklin, 1995; Rowland, 1992). Thus, social institutions were developed to decrease male vulnerability and to create the notion that the biological tie is central to men's relationships with their children.

Feminist critiques of male seed theory

Feminist arguments that highlight the role of male seed theory in creating patriarchal social relations have been criticized for presenting an oversimplified view of the roots of women's oppression (Sawicki, 1991), and indeed, this theory is certainly not a definitive explanation of the oppression of women. A variety of different feminist theories exist, each based on differing notions of the root of sexism, and male seed theory is related largely to one particular group. Male seed theory is most closely aligned with radical feminism, a line of reasoning that believes women's oppression is related to male control over women's reproductive and sexual functions. Radical feminism believes that in order to ensure the validity of paternity, men have restricted women's sexual desires. This argument is clearly evident in feminist responses to male seed theory.

However, numerous alternatives are offered by other feminist theories, and any theory that presents a homogeneous view of men and women's experiences with the

discovery of biological paternity (which male seed theory does) can only present an inaccurate and overgeneralized view. Marxist feminists may view male seed theory as having contributed to women's oppression. However, they would likely argue that because male seed theory largely ignores the effects of the relations of production on women, it provides only a partial analysis. They raise the issue that women in different economic classes have experienced male control differently throughout history. In a similar fashion, anti-racist feminists would respond that male seed theory represents only a particular view that once existed in the history of Western society, and is not a universal history of the evolution of all cultures. By reflecting only one perspective, it ignores the numerous non-Western cultures that exist throughout the world. Thus, male seed theory is at best a partial representation of relatively wealthy, or at least propertied, people in Western history. At worst, it presents a classist, racist view of one very particular perspective held during a certain period in Western history. While male seed theory has been repudiated, it has not been forgotten, and its implications still echo within Western culture.

Any theory that relies heavily on biological discoveries also leaves itself open to critiques that it is biologically deterministic. Most feminists are wary of theories based on biology since women's biology, especially in relation to reproduction, has been used throughout history to justify sexism. The physical differences between men and women, and especially women's role in reproduction, have been used to justify the representation of women as frail, weak, overly emotional, and incapable of physical exertion (Ehrenreich & English, 1978; Dowling, 2000). And as Pinto-Correia (1997) states: "every newly uncovered aspect of biology has been promptly converted into yet another

proof of women's inferior status" (p. 267). Thus, a theory based on the discovery of reproductive physiology may be accused of being biologically deterministic and essentialist because it is based on men's and women's biological roles in reproduction. On the other hand, O'Brien (1981) asserts that while her feminist discussion of reproductive relations may examine a biological process, this does not mean that she is proposing a biological determinist viewpoint. She maintains that her analysis of the effects of men's alienation from reproduction does not reinstate nature-based theorizing; rather, she claims to examine how men in Western society have attempted to deal with their biological role in reproduction. Looking at how social relations may have changed with the discovery of biological paternity is not the same as arguing that we are all intrinsically held in our gender positions because of our biology. Instead, many feminists examine how society deals with biological realities, the social meanings that have been attached to biological sex differences, and the social relations that have resulted from this (Achilles, 1986; Eichler, 1997; Marsiglio, 1998; O'Brien, 1981; Strathern, 1992, 1995). O'Brien is right to make this distinction. Nonetheless, male seed theory faces a further challenge when a closer look at the Enlightenment-era scientific debates around the biology of procreation reveals that the emphasis on the male seed was not universally accepted.

A history of science and seed

In her discussion of the history of European scientific debates about reproduction during the seventeenth and eighteenth centuries, developmental biologist Pinto-Correia (1997) counters the one-sided view presented by male seed theory. While she does not

dismiss male seed theory, Pinto-Correia neither uses this term, nor opines on the original discovery of physiological paternity. Rather, she provides a view of the debate that occurred among Enlightenment-era scientists about differing theories on the biological processes of reproduction. The two major groups in this debate both believed in preformation: the belief that each human embryo was in existence before any contact occurred between egg and sperm, that each embryo for all future humans existed inside the first woman or man created by God (Pinto-Correia, 1997). As a contrast to male seed theory, the most striking aspect of this debate is that it centred on whether the potential for all humanity was housed inside women or men. The primary camps were divided into ovists, those who believed that preformed humans existed inside eggs, and spermists, who believed that miniature babies were housed inside men's sperm.

Although male seed theory implies that for centuries the sperm was believed to play the active role in creating life, Pinto-Correia's history makes it clear that scientific theorizing is rarely so straightforward. In contrast, the ovists believed that all preformed life existed within women's eggs which were somehow activated by men's semen in order to trigger development and pregnancy; these views generally faced less scrutiny than those of the spermists. Locating the central aspect of procreation within the egg was both the greatest benefit and the downfall of ovism. It was advantageous because it was easy to relate to, since humans had easily witnessed the hatching of animal eggs. It therefore made sense that life originated from eggs. Eggs were also easier to observe, especially the eggs of animals such as frogs and chickens, and the scientists who observed such animals were frequently able to find evidence of ovism in the form of miniature animals sitting inside eggs waiting to have their development triggered.³

A further advantage to locating life within the egg was that eggs were represented as being spherical and the sphere was considered the perfect shape (Pinto-Correia, 1997). It was easier to reconcile oneself to the view that God had placed all humans within a sphere – long associated with heavenly shapes and music – than to think of him placing all humans within the head of a sperm, which closely resembled a worm. On the other hand, eggs existed within the bodies of women, who were thought to be imperfect and inferior. As Pinto-Correia (1997) states: “If ovism was the true system of reproduction, God was sending a mixed message. He had locked us inside perfection. And then He had locked perfection inside imperfection” (p. 242). This was by far the most difficult aspect of the theory that ovists were ultimately unable to justify. While both preformationist theories were destined to be discounted by further scientific discoveries, the need to justify why God would encase perfection inside women – the ultimate examples of human imperfection and the site of original sin – would remain the largest philosophical obstacle for the ovists.

Contrary to the seemingly simple explanation provided by male seed theory, the group of Enlightenment scientists who believed that preformed humans existed within sperm found that it was not an easily defensible theory (Pinto-Correia, 1997). As was the case for the ovists, locating the soul of procreation in the male body also worked both for and against the spermists. Since Christian belief stated that men were created in God’s own image, it was easy to justify God’s motivation for placing all future humans within men’s bodies. Combining the philosophy behind male seed theory with scientific experiments that encouraged them to see what they were already looking for, spermists hypothesized that sperm contained the body, the soul, and the active part of reproduction.

It was thought that the sperm needed only to meet the egg within the womb in order to begin developing. However, as Pinto-Correia (1997) points out, both the high numbers of sperm in semen and the form of sperm worked to the spermists' disadvantage. The theory held by many spermists postulated that each sperm, of the millions within each ejaculation, contained a preformed person, so one of their biggest problems was attempting to explain why God would create a system with so much waste of human potential. This concern caused one of the leading scientists among the spermists, van Leeuwenhoek, to draw an analogy between sperm and apple seeds. Reasoning that an apple tree could live for one hundred years and produce thousands of apples annually, with each apple containing 6-8 seeds, he pointed out that not every seed would become an apple tree, even though each has the potential to do so (Pinto-Correia, 1997). Although this theory was likely the best justification the spermists were able to provide, it was not enough to convince their opponents.

The second major obstacle in the path of spermism was the physical appearance of sperm themselves. Ovists frequently referred to sperm as worms, and questioned the audacity of those who dared to claim that God would have placed all potential human life within millions of tiny worms, even if those worms were located within the preferred site – the male body (Pinto-Correia, 1997). Rhetorically, the spermists probably failed to help their own cause in this regard, because they regularly referred to sperm as miniature animals, or animalcules, thus encouraging others to compare sperm to animals. Since worms were the closest living animal that resembled the descriptions and drawings of sperm, their appearance became an easy target. Although scientific debate between the ovists and the spermists lasted for about two centuries, neither side could claim victory.

Further scientific experimentation dismissed preformation theory as a whole, and the entire debate was relegated to a laughable footnote in scientific history.

From the male seed theory which originated in ancient times to the ovist and spermist debate between preformationists in the seventeenth and eighteenth centuries, it is clear that the history of explaining human origins has taken several divergent paths. Various arguments throughout recorded history have identified both male and female bodies as the supplier of the active component of procreation. Importantly for this discussion, this continual debate reveals that attempts to explain the reproductive process have been a concern within Western society for centuries. Explaining how children are biologically tied to their parents represents an important quest in Western culture. Correspondingly, the information and beliefs about the nature of reproduction have been used throughout history to explain and justify particular social relations, and there is no reason to assume that present debates are any different.

Modern explanations: Genetics and the equal division of reproduction

Although modern scientists have rejected male seed theory, ovism, and spermism (Pinto-Correia, 1997), the desire to explain biological ties remains. The scientific exploration of genetics has denied either sex a claim to sole privilege of endowing characteristics on the embryo, postulating instead that women and men make equal genetic contributions. Indeed, it is now commonly acknowledged that women and men provide an equal contribution to the creation of a potential child (Eichler, 1997; Rothman, 1989). Rothman (1989) and Eichler (1997) emphasize that while this claim of equality is true if one highlights genetics as *the* valuable contribution, it ignores the fact that women

actually provide more than men to the process. Representing women and men as equal contributors to reproduction implies that women are granted rights to their children not “as *mothers*, but as *father equivalents*, as equivalent sources of seed” (Rothman, 1989, p. 37). Similarly, Eichler (1997) states that “it is not very meaningful to judge motherhood in fatherhood terms – which is precisely what we are doing. A father’s biological contribution is simply not comparable to that of a mother either a century ago or now” (p. 82). When the two are represented as being equal, the male contribution, the seed, or (in contemporary language) the genetic tie, is represented as the most important aspect of reproduction, against which all else must compete; women are portrayed as merely contributing half of the seed.

A social focus on the genetic aspect of parenthood ignores the variety of material contributions on which women’s claims to their children are based (Stanworth, 1987). Rothman (1989) argues that emphasizing genetics and portraying women’s contribution to procreation as merely equivalent to men’s ignores women’s experience of pregnancy. She states that a view representing children as “ ‘half hers, half his’ ... has no place for the inherent physicality of gestation and lactation” (p. 249). This devaluation of the experience of pregnancy stems from a cultural context in which the social notions around pregnancy have always been ambivalent (Franklin, 1995; Stanworth, 1987). While pregnancy may be a time for some women to enjoy a unique, empowering physical and emotional experience, it can also be a period of great physical and emotional hardship. In addition, some women may feel a positive connection to the future child within their bodies, while other women can find themselves under increasing social controls – to immediately overcome an addiction, for example – that makes their experience of

pregnancy oppressive and unpleasant. To further complicate the social notions regarding pregnancy, Strathern (1992) suggests that the more value society places on the genetic aspect of motherhood, the more ambiguous the connection of gestation to meanings of motherhood becomes. Similarly, Rothman (1989) stresses that because gestation is unique to women, it lacks a conceptual meaning within a patriarchal social context that defines the world based on male experiences. Within the Western patriarchal system, the valuation of genetics can fragment women's biological aspects of motherhood, potentially disconnecting the genetic from the gestational experiences, rather than experiencing pregnancy and potential motherhood in a holistic way.

A focus on the genetic aspect of parenthood that represents men's and women's contributions to parenthood as equal also ignores the material reality that women tend to have more daily, social responsibility for child rearing (Eichler, 1997; Rothman, 1989; Stanworth, 1987). Portraying men's parenting role as equivalent to women's ignores the significant emotional and physical work that women perform when raising children. Even though most women have entered the paid workforce, they still tend to fulfill the primary nurturing and caregiving functions of parenthood (Griswold, 1993; Lamb, 1987; Oakley, 1975; Rothman, 1989; Thurer, 1994). Researchers have established that women remain the primary caregivers to their children, regardless of whether they also work outside of the home (Eichler, 1997; Griswold, 1993; Lamb, 1987). LaRossa (1988) and Eichler (1997) state that although the cultural representation of fatherhood now portrays fathers as being more involved in child care than ever before, the actual conduct of fathers does not show much change at all. Among heterosexual, cohabiting couples with children, it is more likely that the woman is still the one who has primary interaction

with, accessibility to, and responsibility for the child (Lamb, 1987). Despite their other roles, mothers are still frequently expected to provide the fundamental physical and emotional support to their children, and a social framework that views fatherhood and motherhood as equal ignores the fact that parenting involves more work for women than it does for men.

Reliance on the genetic tie has remained central to reproductive relations despite profound changes in knowledge about reproduction. O'Brien (1981) names the discovery of physiological paternity as the first major historical event that shaped current reproductive relations in Western culture. Similarly, Franklin (1998) points out that early anthropologists judged other cultures' level of civilization partly according to that society's knowledge of the facts regarding biological paternity. O'Brien names the development of reliable contraception as the second major historical occurrence that affected the current Western reproductive narrative. I agree that this was significant in that humans gained a sense of control over their reproductive lives. Furthermore, I think that this perception of control over reproduction has contributed to the growing use of ARTs, which is the most recent event to encourage a re-evaluation of Western beliefs surrounding procreation. ARTs raise issues about who is allowed to become a parent, how parenthood is defined, and which aspects of reproduction are socially privileged. ARTs allow reproduction to be detached from sex, and conception to be separated from gestation. They alter the reproductive experience for women and men who use them, and generally raise new considerations around how men and women become parents.

When physiological paternity was discovered, men realized that they were alienated from reproduction; ARTs are now enabling forms of reproduction that similarly

separate women from the reproductive process. New developments in reproductive medicine have changed social views of reproduction, and are reconstructing parenthood in ways similar to the fragmentation that occurred with the discovery of men's physiological role in procreation. Further, as scientific discoveries in the field of reproduction and genetics intensify in complexity, society is increasingly looking to genetics to provide a sense of generational continuity (Condit, 2000; Eichler, 1997; Franklin, 1995, 1998; Hubbard & Wald, 1997; Lippman, 1993, 1998; Rothman, 1998). Developments in reproductive and genetic technologies are changing many social norms regarding reproduction. With this comes the potential to alter the way people view their familial relationships.

Throughout Western history, people have turned to science, religion, and philosophy to explain the nature of the biological processes of reproduction. How humans come to be is a valid question to ask; yet there are numerous different ways of approaching it. Western history has consistently explored the biological line of questioning by asking how the human body comes into being, while often neglecting analyses of how Western culture shapes the roles and values that are imposed on people from birth. This pattern intensifies in the modern search to uncover the remaining secrets of reproduction and genetics. However, the vast social ramifications of scientific research on reproduction are often downplayed, and the potential effects on the family – the social system most affected – are often ignored. The history of biological debate regarding reproduction is intertwined with the way in which the family has been socially organized. While human physiology remains the same, what is known about it has changed drastically throughout history, with particularly radical changes occurring in the

last century. Societal knowledge about the biology of reproduction affects how families are organized socially. Thus, I will now turn to a discussion of the social organization of the institution of the family.

III. The nuclear family and the social norms of family formation

Family relationships gain their meaning from the social definitions associated with the family. In Western society, important life cycle events happen within the family – most people are born into a family, most are introduced to the world through their family, and, when most people die, it will likely be family members who mourn the deepest. For people who are not raised within a family, the absence of that relationship will affect their lives in deep and meaningful ways, for it is within a family that most people gain an understanding of the world.

The Western kinship system, a social system that organizes and defines the rules of belonging to a family, combines the natural and social aspects of family formation (Cole, 1995; Strathern, 1992, 1995). Because procreation is a major aspect of kinship, Western culture tends to take the primacy of biological reproduction for granted, and emphasizes the role of biology in shaping the social construction of kinship in Western society (Strathern, 1992). However, the biological and the social aspects of reproduction are not intrinsically connected, and it is possible to separate the natural and social domains (Cole, 1995). A family may be formed through social bonds without the biological relationship – for instance, in cases of families formed through adoption. On the other hand, in cases of birth mothers who place their child for adoption, a biological

tie exists, but the primary social relationship is formed within the non-biologically related adoptive family.

As well, while all humans experience the same biological processes in the act of procreating, different cultures vary greatly in their notions of the separability of the natural and the social roles in creating children. One historical example comes from a Jesuit priest during the European colonization of Canada. He recorded an exchange that occurred between himself and a Montagnais man when the priest attempted to explain that the man should not permit his wife to have sex with any other men because this would raise doubts regarding the paternity of the man's sons. The Montagnais man responded: " 'Thou hast no sense. You French people love only your own children; but we all love all the children of our tribe' " (Coontz, 1992, p. 231; Leacock, 1991, p. 17). Although the Montagnais man possessed the same knowledge of the male biological contribution to reproduction, Montagnais social relations were such that the biological tie between father and son was far less important than it was for the French priest. Thus, different societies are less concerned with joining the biological and social domains in their construction of families. This shows that the meanings assigned to biological relationships are socially constructed, and that there is no single, innate way in which biological ties must be perceived.

Although the biological and social categories of the family are culturally constructed and distinguishable domains, Western society tends to ignore the constructedness of the biological in favour of viewing it as a natural given. Societal definitions of family relationships tend to rely on the notion that the biological or natural sphere prescribes given relationships. For example, a woman who gives birth to a child

will generally consider that child a member of her family, as will her male partner. This occurs because society takes for granted that families are formed through natural relationships, and attaches parental rights on the basis of biological bonds (Strathern, 1996). This privileging of natural relationships is not universal; the fact that other cultures do not hold these relationships to the same standards⁴ means that natural relationships are important in Western culture because particular cultural meanings are attached to them. Thus, relationships that are commonly classified as natural are in fact socially defined (Achilles, 1986; Franklin, 1995; Martin, 1990; Ragone, 1998; Sawicki, 1991; Strathern, 1992).

To further confuse the issue, there is no one firm definition of nature; rather, nature tends to derive its social meaning from the dichotomy of culture/nature (Haraway, 1991; Wajcman, 1991). Consequently, nature is that which most people view as positioned outside of culture, outside of deliberate human creation and control. This notion of nature as the opposite of culture obfuscates the reality that nature, culture, and the line separating them are all fluid, unfixed categories (Wajcman, 1991). For example, during the Victorian era, women were considered weak, irrational beings whose purpose in life was to tend to the emotional care of their families (Ehrenreich & English, 1978; Thurer, 1994). These characteristics were thought to be natural – part of women's inherent, biological make-up, and therefore unchangeable. The majority of theorists now recognize that attributing these characteristics to women's natural composition is contemptibly false. Indeed, even during the Victorian period, they described only middle- and upper-class women, since most working-class women were certainly not treated as weaklings. In contemporary Western society, numerous cultural beliefs have

changed, and the notions about the natural weakness of women are dismissed as being social constructions that existed within a context that was very restrictive for women; these characteristics are now recognized as the social prescription for proper femininity. This shows that the way people categorize themselves and others in Western culture is open to change. Since nature is commonly classified as that which is outside of culture, popular notions about what is natural depend on prevailing socially constructed notions about what is cultural. Thus, social categories commonly rely on biological, or natural, relationships to form the boundaries of families, yet the very categorization of particular relationships as natural is socially constructed.

How Western culture conceives of natural relationships is related to mainstream notions of the biological processes that create them. Just as a dichotomous social definition assigns natural relationships their ambiguous meaning in the nature/culture distinction, a culturally imposed dichotomy – nature/technology – constructs dominant notions of the natural processes of reproduction. Similar to the nature/culture divide, the boundary between nature and technology is a social construct that is affected by social change, yet the constructedness of natural processes is often ignored and nature is presumed to be given. In the midst of these socially perceived dichotomies, it is important to recognize that, as society labels a relationship or a process natural, that relationship or process becomes imbued with an untouchable, inherent value (Franklin, 1995). Within this boundary confusion, deliberate human control in the form of technology may be enacted over a perceived natural process, and become integrated into an expanded sense of what is natural, thereby attaining an irreplaceable, given status.

Various feminist theorists have explored the effects that reproductive technologies have had on changing the perceived natural process of pregnancy and birth. These changes began with early gynecology, as medical doctors tried to claim control over the women-centred processes involved in pregnancy and childbirth. Doctors accomplished this partly through the use of medical tools, which became thought of as necessary to the birthing process and which midwives were forbidden to use (Sawicki, 1991; Wajcman, 1994). This gradual assimilation of a technological element as a necessary part of a natural process is still reflected in current changes involving ARTs, where the technologies being used to assist reproduction are becoming regarded as a necessary aspect of the natural process of reproduction (Franklin, 1995; Van Dyck, 1995). Franklin (1995) states:

The world becomes visible and knowable through technological means, creating new forms of accessibility to and improvement of reproduction. The necessity for technological assistance thus comes to be seen as a product of nature itself. In this slippage, whereby the 'helping hand' of technology is both conflated with, and yet also displaces, nature, a key shift in the cultural meaning and organization of reproduction must be seen to lie. The importance of this shift is in its legitimation and naturalization (indeed legitimation *through* naturalization) of assistance to the reproductive process (pp. 331-2).

Thus, in the context of reproduction, when an idea or phenomenon that was previously considered to be cultural or even artificial in origin, comes to be seen as natural, it is imbued with a legitimacy that makes it seem given and unchangeable. This can be dangerous, as taking something for granted gives it a status that is beyond criticism. It is important that feminists examine the relationships and processes which society considers natural, as these hold the key to that which Westerners take most for granted. The

“natural” process and relationship that Western culture most takes for granted is the process of reproduction and the resulting biological parent-child relationship.

Ideal relations: The nuclear family

Within Western culture, the family form considered most normal is that of the traditional nuclear family. Complete with assumptions about natural relationships and gender roles, the nuclear family remains the ideal, beside which all other families are viewed as deficient. By placing a man and woman, who are assumed to be the biological parents of the children, at the core of its structure, the nuclear family is the ideal example of how the family combines the perceived domains of the natural with the social (Cole, 1995; Strathern 1992, 1992b, 1995). Within this family structure, the social kin relationships between family members are assumed to be based on their marital and biological ties. The nuclear family is composed of two types of bonds – the *consanguineal* and the *affinal* bonds (Achilles, 1986; Engels, 1970). The consanguineal bond refers to the involuntary biological bond that exists between parents and children. In the usual case, the consanguineal bond describes a parent-child relationship in which both parents are genetically related to the children, the mother is related through pregnancy and birth, and the biological parents take on social responsibility for raising the children (Cole, 1995; Snowden, Mitchell & Snowden, 1983). The affinal bond refers to the contractual, chosen marital relationship that exists between the married, heterosexual couple who forms the basis of the socially normative family. This bond endeavours to ensure that the parents have an exclusive sexual relationship with each other (Snowden, Mitchell, & Snowden et al., 1983), which serves as assurance that the

children are biologically related to the man in the family (Marsiglio, 1998; Rothman, 1989). This is an idealized definition of the family, and one that has huge implications for all members of society – both individuals in families that conform to the nuclear family model, and those in families who do not adhere to this structure.

While the biological relationship is culturally privileged, it is also differentially emphasized for men and women. Marsiglio (1998) and Meerabeau (1991) both observe that a man is said to have fathered a child if he has genetically contributed to a child, regardless of whether there is a social relationship. “To father,” then, emphasizes the genetic tie by referring only to a man’s biological role in reproduction. “To mother,” on the other hand, refers to a woman’s long term nurturing role, placing an emphasis on women’s social role (Meerabeau, 1991; Marsiglio, 1998). These phrases are revelatory of the different social roles assigned to mothers and fathers. While men may be recognized as the father merely for contributing half of the genetic material, in order to be fully considered the child’s mother, women are most often expected to contribute their genes, undergo pregnancy and birth, and fulfill a life-long social role that involves being responsible for the child’s emotional and physical needs. Clearly, parenthood holds greater expectations for women than for men. While the normative model of the nuclear family defines a deficient familial relationship as one that is lacking full biological and social status for men and women (Strathern, 1992), fulfilling both the biological and social parental roles requires a much greater commitment from women than it does from men.

The traditional nuclear family, then, is based on specific assumptions regarding the marital, or affinal bond, men’s and women’s different gender roles, and the

consanguineal bond that emphasizes biological ties within families. Perhaps its particularity is a major reason why it has often been more a powerful idea than an overwhelming reality. Throughout the twentieth century, the nuclear family co-existed with other family forms, including single parent and blended families, which were often a result of the death of one parent (Coontz, 1992). Although the number of people living in the nuclear family model is statistically decreasing (Coontz, 1992; Ragone, 1998), it remains the ideological norm, the moral model (Cole 1995), and the form to which all other family forms are negatively compared. Cole refers to this phenomenon as the “ideology of familialism”. This ideology is defended by conservative “protectors” of the family, regardless of the fact that it does not reflect the reality of many family structures. While common misconceptions often lead people to believe otherwise, the idealized nuclear family was not universal in the 1950s (Coontz, 1992), and is totally unrealistic now (Ragone, 1998; Smart, 1995).

Holding one family form up as the moral norm for all families is unfair and dangerous (Cole, 1995; Haines, 1990). I agree with Foucauldian feminist Jana Sawicki (1991) about the importance of recognizing resistance, thus I acknowledge that there have always been some individuals and families who lived in ways that resisted the dominant notions regarding families.⁵ Currently, it is only one among numerous family forms that exist, including single parent and blended families (which are now formed more often because of divorce than death), unmarried couples with children, families formed by gays or lesbians, single people with or without children, childless couples, groups of adults cohabiting both with and without children, and other forms of family life. People’s reasons for entering into families that resist the dominance of the nuclear

structure are varied, some do so intentionally, some unintentionally. Anti-racist feminists have challenged white feminist critics of the family for basing their critiques on the white nuclear family. Collins (1990) argues that the realities of black women's lives, and the significant ways in which they can differ according to family relationships, class and work experiences, and the common misperceptions held about black women as mothers have been largely ignored. Black women's experiences of family are often examples of resistance to the normative notions about the nuclear family; even many black women who live within a nuclear family structure remain subject to stereotypes (either the nurturing servant mammy image, or the controlling emasculating matriarch) that will affect how dominant white culture views their familial roles as distinct from the perceived white norm (Collins, 1990).

Other feminists have focused their critiques on the role that the Canadian state has played in preventing certain groups – immigrants, Native people, gays and lesbians – from living within the family form of their choice, even when that family form is nuclear in structure (Das Gupta, 1995; O'Brien & Weir, 1995). Policies of the Canadian government have included the systematic removal of Native children from their parents, and the prevention of children and spouses joining immigrants throughout history, including the contemporary immigration rules as they are applied to immigrant women who come to Canada as domestic workers (Das Gupta, 1995). Similarly, there has been (and continues to be) rampant systemic discrimination against gay men and lesbians, especially with regard to their access to adoption and the greater chance of losing custody of their children because of their sexual identity (O'Brien & Weir, 1995). All of these social groups, both those who face severe government restrictions and those who are

tolerated by the state, exist in resistance to the normative nuclear structure. And this resistance, although varying in form and degree throughout different historical periods, has affected the dominant notions of the nuclear family, at the very least by bringing out its defenders. Indeed, the power of resistance to the nuclear model plays an important role in prompting conservative protectors of the traditional nuclear family to fear the decline of their ideal (Ehrenreich, 1983; Faludi, 1991). Nonetheless, the nuclear family model has retained much of its power as the perceived norm, against which many people judge themselves; thus, it is the goal that many real families strive to reach. Although the nuclear family is dying according to conservatives, declining according to statistics, and oppressive according to many feminists, it remains the standard to which all other families are compared.

The privileging of genetic ties in non-nuclear families and the construction of "illegitimacy"

The ideal of the traditional nuclear family model hinges on two major factors: marriage and the creation of children within that marriage. Throughout recent Western history, the primary purpose of marriage was to ensure the legitimacy of children. Engels (1970) claims that the purpose of monogamous marriage was to "make the man supreme in the family, and to propagate, as the future heirs to his wealth, children indisputably his own" (pp. 57-8). It ensured that a child born to a woman "belonged" to her husband (Eichler, 1997; Rothman, 1989; Smart, 1987). At least, it ensured that children would *appear* to belong to their mother's husband. Engels (1970) points to the Napoleonic Code, which decreed that any child conceived during a marriage was legally the child of the husband. Thus, the actual legitimacy of a child was often less important than the appearance of legitimacy; either way, it was determined by men. Corea (1985) states: "a

woman can never legitimate her own child because 'legitimacy' is a concept invented by men for men" (p. 37-8). The harsh line separating "legitimate" from "illegitimate" children was mostly drawn in cases where the mother was unmarried, and thus lacked the appearance of legitimacy. In English common law, these children were considered to be *filius nullis* – the child of no one (Smart, 1987). Often the label would follow the child for life, frequently condemning the child and mother to poverty, and carrying a wealth of assumptions about the child's flawed moral character and lack of intelligence which generally prevented the child from ever achieving a position that would allow him/her to prove the assumptions wrong.

More recently, the label of illegitimacy has become less stigmatizing for mothers and children in Western culture. This has occurred within a social context characterized by high rates of divorce, cohabitation outside of marriage, and single parenthood. Marsiglio (1995) argues that this social context has encouraged a perception that genetic fathers should demonstrate social responsibility for their children, which could effectively increase the importance of social aspects of fatherhood. At the same time, however, biological paternity is being highlighted in a new way through the development of DNA paternity testing (Marsiglio, 1995; Strathern, 1996). Because of DNA testing, definitions of paternity are no longer based solely on the social marital relationship between a man and a woman (Smart, 1987). Marsiglio mourns the lack of trust that DNA testing has engendered between men and women. He postulates that in the past, men chose to trust women to be truthful about their paternity status. I disagree that men have had much trust in women. Rather, they have created social mechanisms including marriage, and the concept of "illegitimate" children, so that they can control and monitor

women's sexual behaviour in attempts to ensure the accuracy of paternity claims. DNA testing is merely one more tool that allows men to control women. While this testing has benefited some women who hope to prove a man's paternity in order to hold him to some level of financial responsibility for the child's well-being (Marsiglio, 1995), it nonetheless uses the genetic tie as the defining line for fatherhood. The use of DNA testing has exposed the danger of privileging the genetic tie in definitions of fatherhood, especially when paternity is used to justify a man's access to his child and the child's mother in cases of abusive or coercive relationships. Further, genetic paternity does not mean that a man will be willing to commit to having a social relationship with the child, nor does it guarantee that a man will pay court-ordered child support payments. Thus, DNA tests use the genetic relationship to define fatherhood in ways that can often be harmful to the child and the child's mother; as well, these tests maintain the central importance of genetic fatherhood, and in doing so, emphasize the importance of the nuclear family structure.

Nuclear families lacking the genetic tie, and the importance of appearances

For families who appear to fit within the nuclear family norm, yet lack the genetic tie, and therefore do not totally conform to the nuclear family, appearing to conform is the nearest they can get to fulfilling the nuclear model ideal. Families who do not correspond to the ideal model, such as those formed through adoption or gamete donation, are generally considered nuclear families as long as they conform to the ideals implicit in the nuclear family structure. Social theorists have argued that practices around gamete donation, such as donor anonymity, and secrecy about the procedure, separate the

donor from the receiving couple, so the resulting family can feel and appear to be a 'normally' created nuclear family (Achilles, 1986; Haines, 1990). Even for families with the appearance of a nuclear norm, biologically related families remain the reference point, serving as the model to be mimicked by those who do not entirely fit (Haines, 1990). That they do not fit perfectly into the nuclear mold is clear in the language that is used (Achilles, 1986; Greil, 1991). Couples who raise their biologically related children are referred to simply as the parents of those children. However, those who use adoption to form their families may not be considered the "real" parents (Snowden et al., 1983), and may be referred to as the "social mother or father," or in cases of remarriage, the "step-mother or step-father." Similarly, the "birth mother" who puts her child up for adoption is not accorded full parental status, even though she shares a full biological – genetic and gestational – relationship with her child. This is based on two factors: her inability to live up to the socially expected role of mother, and the lack of value placed on the work involved in pregnancy and birth. Since the mothering role is based on a long-term, life-long commitment, a woman who does not raise the child she gives birth to is not ascribed full parental status. This is further enabled by the fact that patriarchal society fails to recognize pregnancy as an experience that may create a meaningful attachment (Rothman, 1989). Attaching a prefix to the term "mother" or "father" makes it clear that the person has a relationship which deviates from the ideal biological norm.

The privileging of biological ties is reflected in language, but is based on a number of societal notions about biological relationships. One widely held belief is that since they are perceived to be natural, biological ties are given, involuntary, and permanent, as opposed to social bonds which are chosen, voluntary, contractual ties, and

are therefore easier to sever. According to this line of thinking, a biological relationship cannot be shed from one's life even if its obligations are neglected (O'Neill, 2000). This reasoning represents the legitimization of relationships by virtue of their "naturalness" and makes use of the false notion that "natural" bonds are not socially constructed. Nonetheless, O'Neill (2000) is correct in arguing that the idea of natural relationships as given and permanent is commonly held and has become a cultural basis for privileging biological relationships. Suggestions that a wide variety of traits may be genetically inherited also contribute to privileging the biologically related family. From intelligence (Andrews, 1999; Corea, 1985; Hubbard & Wald, 1997; Kurtis, 1999; Stanworth, 1987), to physical features (Achilles, 1986; Kurtis, 1999), athletic ability (Marks, 1995), and even alcoholism (Hubbard & Wald, 1997), the suggestion that a person's genetic makeup is responsible for these multifaceted characteristics partly reinforces the social preference for biologically related children. Representing genetics as the key determinant in personal characteristics has reinforced the belief that a genetically related child will have more in common with his/her parents. As well, parents frequently prefer to share common physical features with their children, so that their family is able to look like all of the members are related. This is often cited as being important to couples who use donor sperm, many of whom seek out a donor who resembles the social father (Achilles, 1986; Andrews, 1999). Another reason for preferring biologically related children is the desire to have a sense of continuity with previous generations (Sherwin, 1992). This is evidenced in an infertile couple's letter, which Marsiglio (1998) quotes: " 'if we are unable to conceive a biological child, thousands of years of family evolution and lineage will end' " (p. 103). This may also relate to a desire to provide genetic links between

families – partners become linked genetically to each other when they have a biologically related child, and each of their families also become indirectly genetically related (Snowden et al., 1983).

There are, then, numerous reasons that couples in Western society are likely to privilege a genetically related child. Under all of these reasons lies the fact that having genetically related children is the social norm and people generally like to be “normal.” In addition, there are powerful disciplinary practices in Western society that work towards creating desires and promoting identities that correspond to the norms according to which men and women judge their lives (Sawicki, 1991). This constructs a reality in which life spent in a certain context often means that normative ideas will become individuals’ expectations for their own lives. Thus, society constructs a desire for the normalcy of a genetically related nuclear family.

The nuclear family model is not neutral, nor is it a model imposed on us by the natural facts of biological reproduction. It is one way of organizing the social relations of production and reproduction, and it is a model that serves the needs of an individualistic, patriarchal kinship system. Physiologically, men are only necessary for a brief sexual encounter, yet the social constructions surrounding marriage and family formation have made the male role in the biological process central to the entire experience of reproduction, such that men, women, and children may construct their familial identities around men’s genetic contribution. It would be more beneficial for all members of society if the social notions surrounding fatherhood were expanded to place more emphasis on men’s social relationship with children, and if men were encouraged to develop meaningful relationships with children based on factors other than the existence

of a genetic relationship. Women's parental role should not be the only one to encourage a life-long social, and emotional commitment. The social context that privileges genetic ties and the nuclear family is also limiting because those families who do not conform to this norm are still defined by society, and may define themselves, in relation to their inability to fulfill this norm. Considering one family form to be the socially dominant form is false and restricting to all members of society.

Chapter Two: Infertility and the social norms of parenthood

Beliefs about procreation are themselves foundational to a range of cultural definitions concerning parenthood and kinship, gender and sexual difference, inheritance and descent. To modify the processes of reproduction or genetic inheritance is to make unprecedented interventions into human reproductive futures and thus, inevitably, into key definitions of humanity itself (Franklin, 1995, p. 332).

The strength of the idea of the genetically related nuclear family is evident in the difficult experiences of infertile people whose medical condition make it difficult for them to live up to the nuclear family model. Individuals and couples who experience infertility are forced to examine their previously held notions about family relationships, and they often find it necessary to ask themselves how important it is for them to have genetically related children, experience pregnancy, or to become parents through adoption. ARTs provide new solutions to infertility and have brought increased attention to the experience of infertility. While some of this has encouraged positive change to the societal image of infertility, such as increased education and public awareness⁶, ARTs have also made the choices available to infertile couples increasingly difficult and complicated.

This chapter will examine the complexities of infertility, beginning with a discussion of the variety of social definitions of infertility. Then it moves on to a discussion of women's experiences with infertility, how these are informed by the social norms surrounding motherhood, and an exploration of the often ambivalent choices that women make in attempts to solve their infertility. The next section discusses how social characteristics such as class, race, and sexuality affect people's access to solutions, including both ARTs and adoption. Finally, I examine social expectations around fatherhood, including its effects on men's experiences with infertility, men's preferences

with regards to solving infertility, and their experience with reproductive technologies. Experiencing infertility within a social context that privileges the model of a genetically related nuclear family means that infertile women and men find themselves in complicated situations necessitating that they make important and difficult decisions. How couples experience their infertility is directly related to their interpretation of the normative family structure and the broad social meanings assigned to fertility, infertility, and gender roles.

The experience of infertility in Western culture exists within the context of both the medical and social views of infertility. According to the medical community in Canada and most other Western countries, a couple is infertile if they have been having intercourse without contraception for one year without producing a pregnancy (Achilles, 1993; Greil, 1991; Raymond, 1993; Rowland, 1992; Sandelowski, 1990; Woollett, 1991). Within this definition, it is estimated that approximately 15% of heterosexual couples are infertile, with one third having male factor, one third having female factor infertility, and another one third with either a combined or unknown cause of infertility (Achilles, 1993). Rates of infertility are one and a half times higher among women of colour than they are for white women (Greil, 1991; Rothman, 1989; Rutherford, 1992; Van Dyck, 1995), and it is more common for people in low income groups to be infertile than it is for those in higher income groups (Greil, 1991). Sandelowski (1990) emphasizes that even within the one year medical definition, infertility has a variety of characteristics. For instance, infertility is a syndrome with multiple origins, a consequence of disease rather than a disease itself, and it can be a physiological impairment and/or a psychosomatic disorder (Sandelowski, 1990). Greil (1991) attempts to define the experience of the practical,

medical aspect of infertility by drawing an analogy between infertility and chronic illness. He states that both may take up a lot of time and energy, the conditions and the treatments can negatively affect patients' quality of life, and both are characterized by uncertainty and doubt. This analogy relates largely to the experiential aspects of both conditions, and it is useful to consider when dealing with the medical aspect of infertility.

Infertility is also experienced and defined socially. Within its social context, a couple's experience of infertility often focuses on a sense of failure to conform to the social norms of reproduction, and on their unfulfilled personal desires to have a biological child (Sandelowski, 1990). Greil (1991) makes the point that infertility differs from most medically diagnosed illnesses, in that infertility is defined more by the absence of a desired condition – pregnancy – than by the presence of a physical pathology. When viewed as a social condition, Greil states that there are solutions to infertility that do not involve getting pregnant, including adopting, fostering, and remaining childless. However, as Franklin (1990) points out, the medical definition often overshadows the social one, effectively serving to promote a medical cure – attempting to achieve a pregnancy – over other social solutions. It is also important to recognize that the primary medical and social definitions of infertility assume that having children involves the child being genetically related to the two heterosexual parents and having been conceived through heterosexual intercourse. As long as we think of 'having children' in this limited, genetically based way, we will define infertility accordingly (Franklin, 1990; Lasker & Borg, 1987; Stanworth, 1987). While the biological aspect of fertility may always be an important part of the mindset surrounding procreation, feminists Franklin (1990) and Stanworth (1987) stress that the biological does not need to be the primary

mode of relation to one's fertility or infertility. However, the biological aspect remains the current focus of medical and social notions of infertility.

If the meaning and experience of infertility are largely socially constructed, as I believe they are, then the way infertility is socially explained will affect the way it is experienced. I think infertility can be largely defined by the desire to seek a solution; although a couple may be aware of their infertility, they may not view it as a problem until they want children, and therefore then want to solve what is now a problem. People who have undergone surgical sterilization, have been diagnosed with certain medical conditions, or who are gay, lesbian, or single are aware that having biological children will be difficult. However, many heterosexual couples who do not have any children will not discover their infertility until after they have decided that they want a child (Pfeffer, 1987), in which case their desire to have a child is already established. Greil (1991) agrees that all experiences of infertility will depend on the couple's own wishes and life goals. He views infertility as a socially defined process in which couples "define their inability to bear their desired number of children as problematic and attempt to interpret and correct this situation" (Greil, 1991, p. 7). Similarly, Sandelowski (1990) points out that there is a "lack of a clear demarcation between infertility and fertility, the one condition becoming the other as individual reproductive choices and circumstances change over time" (pp. 37-8). Thus, infertility should be viewed as a social process in which a couple's goals and desires, which are largely socially defined, will shape their experiences surrounding their infertility and their desire to seek a solution.

In order to conceptualize of infertility in a way that considers the effects of both social and individual factors on the experience of infertility, Rothman (1989) suggests

that we view infertility as a disability. She highlights two aspects that may help to place infertility within this category. The first is to view disability as a social concept rather than a medical one, so that we think about it within the context of socially defined “normal” abilities. The second relevant view of disability is to perceive it as a handicap, wherein “handicap” is defined as a limitation that affects an individual’s life goals (Rothman, 1989). Utilizing this definition in relation to infertility would mean that an infertile person, whose goals highlight social parenthood and for whom adoption is available, would not be handicapped by infertility, because the determination of a handicap “depends on how goals are defined and the societal resources to which the person has access” (Rothman, 1989, p. 144). This would allow feminists and policy makers to consider socially acceptable ways of overcoming the handicap of infertility while taking the perspective of different people into consideration, in order to ascertain whether infertility is a handicap for those individuals. This would also bring an individualized focus to determining which methods of overcoming infertility are acceptable within the context of different people’s lives (Rothman, 1989). This way of thinking allows feminists to view infertility within the broader social context while also considering individual circumstances; thus leaving the choice, within certain acceptable parameters, to be made by the individual or couple in a way that fits within the context of their lives. Conceptualizing of infertility as a disability maintains a balance between focusing on the experiences of individuals and the necessity for social policy by placing couples’ experiences and interpretations of their infertility at the centre of the debate.

I. Women's experiences of infertility⁷

Since the definitions and experiences of infertility are dependent upon a couple's desire to fit within the socially constructed norms of reproduction, it is important to look at how societal norms about having children shape the experiences of infertility. Fertility has historically been viewed as women's domain, and much feminist writing on infertility addresses women specifically, so this section will focus on women's experiences of infertility. Widespread cultural assumptions about women's roles as mothers have a considerable effect on how women experience infertility. The social context and individual experiences within which their infertility is experienced are central to a consideration of how women define their infertility, and, thus, how they will desire to resolve it. The first chapter established the genetic tie as an important defining point in the conceptualization of families; this section examines how those cultural norms and the resulting expectations around biological and genetic motherhood greatly impact the way women experience their infertility.

Cultural expectations for women's motherhood role

Cultural expectations around women's social roles are greatly affected by the assumption, fundamental to the ideal nuclear family model, that adult women will become mothers. I believe that this dominant social norm plays a large role in the disciplinary practices that find their power by "creating desires, attaching individuals to specific identities, and establishing norms against which individuals and their behaviors and bodies are judged and against which they police themselves" (Sawicki, 1991, p. 68). Thus, pronatalist social norms construct many women's desire to have children, and are,

therefore, powerful in shaping the experience of infertility. In arguing that the desire to have children is largely socially constructed, I do not want to imply that its constructedness makes this desire artificial or illegitimate. I agree with Haraway (1997) when she states that “to be a construct does NOT mean to be unreal or made up; quite the opposite” (p. 129). Neither do I wish to imply that women are coerced into desiring a child. Instead, I agree with Sawicki’s (1991) Foucauldian feminist approach that patriarchal social relations regarding motherhood operate largely “by inciting desire, attaching individuals to specific identities, and addressing real needs” (Sawicki, 1991, p. 81). Pronatalism is an important social reality that encourages women to identify themselves as mothers or potential mothers, leading women to desire both a child and the resulting motherhood role.

The social construction of pronatalism is based on the notion that a heterosexual couple will have children; indeed, this assumption is the basis for the creation and maintenance of the nuclear family. The parental role has been especially instrumental in the social construction of a feminine identity for women. Often, a woman’s role as a mother or potential mother is bound tightly with her own identity of herself. Rowland (1992) points out that motherhood is socially constructed and presented to women as a desirable role. Women in Western culture are regularly confronted with the message that motherhood is an important passage to full adulthood for heterosexual, married women (Rowland, 1992; Thomasson, 1995; Woollett, 1991). For many women, their social status as full-fledged adults often necessitates having a child. Many of the infertile men and women who participated in Greil’s (1991) study reportedly considered parenthood to

be a normal part of adulthood and stated that their experience of infertility was significantly affected by this viewpoint.

While all women live within this pronatalist context, Stanworth (1990) argues that pronatalist attitudes are targeted primarily towards women in privileged social groups, while other women, such as those who are single, are lesbians, are on welfare, or have drug problems, are discouraged from becoming mothers. For example, Franklin (1990) observes that Dr. Steptoe, one of the doctors involved in the first successful IVF birth, believed that the desire for children was innate in all women, but also thought it was immoral for lesbians and single women to have children. He failed to see the contradiction inherent in his beliefs, so Franklin (1990) points out the problem with his viewpoint: “for socially acceptable women, biology should be destiny, whereas for socially unacceptable women, the demands of biology should be restricted by social sanctions” (p. 208). Thus, even though all women are raised to have similar gender role expectations around motherhood, there is still a belief that women who do not marry men should somehow forget these expectations concerning motherhood that they may have for themselves. When women who are single or lesbian do have children, they represent important possibilities for resisting the male dominated power relations of Western society (Farquhar, 1996; Sawicki, 1991). Despite this resistance, however, there remains a social belief that all women should want to become mothers but that some women are inappropriate to become mothers.

Beyond representing a passage into adulthood, motherhood may also represent the only social role that provides women with socially sanctioned power over another person. Allowing women to have a sense of power by becoming mothers is an important example

of how the disciplinary practices of patriarchal power function by addressing real needs (Sawicki, 1991). In Western patriarchal society, many women are denied a sense of power, so the power involved in motherhood is often presented to women as compensation for the oppression in other areas of their lives (Raymond, 1993). This is primarily a radical feminist view of women's lack of social power. Other feminist frameworks may argue that this perspective represents women as victims who lack control over their lives. Postmodernist feminists would particularly object to this representation of all women as lacking power; instead, they would suggest that the degree to which women experience a lack of empowerment is different depending on the woman's particular identity. For my purpose here, I think it is useful to generalize so far as to say that women tend to have less *socially sanctioned* power than men do.

Experiencing socially sanctioned power over another person is one major way in which motherhood addresses the real need of women to feel empowered in an otherwise sexist culture, so Western culture emphasizes this role for women by representing women's lives around the "metaphors of motherhood." According to Raymond (1993), "motherhood is invariably portrayed as the material or metaphorical act for women's activity in the world" (p. 74), so that most of women's activities are expected to focus on 'mothering' qualities, such as nurturing and creativity. The end result is that, for many women socialized within Western society, the idea of motherhood becomes associated with adulthood, maturity, and power.

More than anything, the relationship between social expectations and women's notions regarding social and biological motherhood are often confused and contradictory. Women's relationships to differing aspects of motherhood are complex, given that they

have three potential connections with a child – genetic, gestational/birthing, and social – whereas men only have the genetic and social connections. This makes women’s experiences around infertility and ARTs especially complex. If an infertile woman chooses to pursue social motherhood through adoption, she is not just losing a genetic link but she also misses the experience of pregnancy and birth. Feminists such as Rothman (1989) and Stanworth (1990) point out that women’s experience of pregnancy is frequently ignored or downgraded in social perceptions and in discussions of social versus genetic parenthood, even though pregnancy can be a very important experience for some women. This means that some women who undergo ARTs to have their “own” child are at least partially resisting the social privileging of a genetic link, endeavouring instead to have the experience of pregnancy and birth. Assigning value to pregnancy involves women placing importance on an experience that is generally devalued in the dominant social relations, and as such provides an example of what Foucault refers to as subjugated knowledge (Sawicki, 1991). Although the valuing of the experience of pregnancy is low on the social hierarchy that constructs the social norms around parenthood, the importance that some women place on the pregnancy experience acts as a form of women’s resistance to the status quo.

Some feminists would agree that, with the widespread cultural valuing of pregnancy, the recognition of pregnancy as a positive and important experience for women would be a positive movement. However, issues around women’s experiences of pregnancy are complicated for feminists who also attempt to avoid promoting pronatalist views that might alienate women who choose to remain childless or who experience infertility. Infertile women’s experiences with pregnancy, trying to get pregnant, and

wanting to become mothers are also often ambiguous and complex. While the value some women place on the experience, or potential experience, of pregnancy has been discussed by some feminists (Bergum, 1989; Rothman, 1989; Michaels, 1996; Stanworth, 1990), virtually no research exists into whether women go through ARTs to preserve a genetic link or to experience pregnancy. It is possible that some women use ARTs to enable both, but since women experience these connections in complex, interrelated ways, it is likely that many women are unwilling or unable to separate the genetic tie and the pregnancy experience in their own conceptualizations of motherhood.

The complexity of social notions regarding motherhood is exemplified by two major American court battles involving contractual pregnancies. One is the “Baby M” case, where the genetic and birth mother in a traditional surrogacy arrangement changed her mind about relinquishing the baby to the contractual and genetic father and fought for custody (Achilles, 1993; Michaels, 1996; Van Dyck, 1995; Whitehead & Schwartz-Nobel, 1989). The birth mother in this case, Mary Beth Whitehead, claimed that through the experience of pregnancy and the bond of a mother to her child, she had developed unexpected feelings towards her child. Her case made free use of the notion that a “maternal instinct” exists which ties the mother to the child. Although some feminists have been widely critical of that biological deterministic reference to a “maternal instinct” (Michaels, 1996), Mary Beth Whitehead did exemplify that the experience of pregnancy can bring about a social relationship between the mother and the child (Bergum, 1989; Rothman, 1989). As is commonplace in contractual pregnancy arrangements, the situation was complicated by class differences between the two parties. At the time of the agreement, the Whiteheads were a one-income working class family

with two other children, while the Sterns were both doctors with a combined income of \$90,000 (Achilles, 1993; Whitehead & Schwartz-Nobel, 1989). According to the contract, the Sterns were going to pay Whitehead \$10,000 for the birth of a healthy baby (Achilles, 1993; Whitehead & Schwartz-Nobel, 1989).

Even though Whitehead was also the genetic mother, the initial court ruling went against her and terminated all of her parental rights (Whitehead & Schwartz-Nobel, 1989). This court found that a contractual agreement must be honoured above all else, and that Whitehead was untrustworthy because she had reneged on her agreement (Whitehead & Schwartz-Nobel, 1989). In their ruling that overturned the original verdict, the New Jersey Supreme Court stated that this was a case where “a perfectly fit mother was expected to surrender her newly born infant, perhaps forever, and was then told she was a bad mother because she did not” (quoted in Whitehead & Schwartz-Nobel, 1989). Because the State Supreme Court’s ruling found that the contract violated adoption laws by involving payment for a child, Whitehead was granted visitation rights (Achilles, 1993; Whitehead & Schwartz-Nobel, 1989). Throughout the complexities of the case though, the status of Whitehead as the baby’s mother was never disputed, most likely because of her genetic and gestational links to the child. Thus, the cultural devaluation of pregnancy occurred within a case that was itself about the importance of pregnancy as an experience that fostered a connection between Whitehead and her baby.

In another legal dispute, Anna Johnson, an African American single mother who was on welfare, served as the gestational – but not genetic – surrogate mother for the genetic child of the contractual couple, the Calverts (Achilles, 1993; Van Dyck, 1995). Unlike Whitehead, Johnson was treated by the media and the court as little more than a

vessel carrying the fetus (Achilles, 1993), or the fetus' foster parent (Van Dyck, 1995). She developed a strong bond with the fetus, and filed for custody of the child in her seventh month of pregnancy. However, not only was she not genetically related to the baby, she was not of the same racial background – Mr. Calvert was white and Mrs. Calvert was Filipino. Like Whitehead, Johnson was also of a lower economic class. Being the genetic and gestational mother wasn't enough for Mary Beth Whitehead to gain custody of "Baby M," and being the gestational mother of a child who was genetically of a different race certainly wasn't enough for Anna Johnson, who lost her case when the court labelled the Calverts the "official parents" (Van Dyck, 1995).

While both of these cases had mitigating class (and, in Johnson's case, racial) differences that likely affected their legal outcomes, significantly, they both grew out of a connection with the baby that each of these women developed during pregnancy. It is evident that the legal system and the media lacked respect for this possibility. During the Johnson case, the *Los Angeles Times* ran an editorial that condemned Johnson as " 'a genetic and hereditary stranger to the baby' who is 'not to be mistaken for the real mother' " (Van Dyck, 1995, p. 163). Both cases serve to support Rothman's (1989) point that in a patriarchal system, women's motherhood role is to bring the children of men into the world and to raise them, though it need not be the same woman fulfilling both roles. These cases also stand as testament to Rothman's additional argument that experiences belonging uniquely to women are degraded within a patriarchal system.

*Women's experiences with infertility*⁸

In Western society, the experience of infertility is closely related to the social norms surrounding biological parenthood. Along with a loss of hope in achieving 'normal' parenthood feelings of loss of control, failure, grief, and guilt are common for infertile couples. For couples to whom having children is an important part of their life expectations, a diagnosis of infertility can affect their sense of self-determination, and cause feelings of failure (Greil, 1991; Lasker & Borg, 1987; Morgan, 1989; Rothman, 1989; Rowland, 1987, 1992). Rowland (1987) views the discovery of infertility as a life crisis that comes "from the knowledge that something over which a woman thought she had control was in fact not within her control" (p. 70).⁹ One participant in Greil's 1991 study confirms this notion when she recalls feeling as though "I didn't have any control over my destiny. It was a real shock to me to find something that I couldn't do anything about" (p. 73). Morgan (1989) similarly describes the loss experienced by women who are infertile as a failure to achieve a child. Greil (1991) asserts that feelings of failure for women are connected to the notion that their bodies are failing, but are not limited to a sense of failure of the body. In his study, only one female participant limited the feeling of failure to her body, while all of the other women who participated felt that they were failures both biologically and personally. He points out that women tend to view infertility as a trait, something they *are*, rather than a condition, something they *have*, which leads them to feel like failures as women. Significantly, Greil (1991) also found that many women in couples with male factor infertility – women who had no physiological impairment themselves – still experienced the sense of biological as well as personal failure. He explains that, regardless of which partner is infertile, the woman is

always the one who does not get pregnant, and for couples to whom infertility represents a lack of the desired state of pregnancy, this will likely have a significant impact on the woman, whether or not she is the infertile partner (Greil, 1991).¹⁰

Researchers also find that feelings of grief tend to accompany infertility (Greil, 1991; Franklin, 1990; Lasker & Borg, 1987; Nachtigall, Becker, & Wozny, 1992). In a study by Nachtigall et al (1992), all of the women interviewed, regardless of whether their infertility was male or female factor, grieved primarily for the loss of a biological child, and secondarily for the loss of the experience of pregnancy and birth. The loss of the experience of pregnancy is logically something that most women would lament more than men, while the intense sense of the loss of a child is attributed to the centrality of the motherhood role in the life expectations of many women (Nachtigall et al., 1992). As a woman in Greil's (1991) study stated: "It was as if a part of me had died, a part of me was never going to be fulfilled. Grieving to hold a baby" (p. 54). Other researchers have pointed out that although the feelings of grief raised by infertility may be similar to those associated with a death, the social experience is different because an infertility diagnosis is neither final, nor a publicly recognized event (Lasker & Borg, 1987). When a death occurs, there is no possibility of bringing that person back to life, yet a medical diagnosis of infertility is open-ended (Greil, 1991), as medicine often provides a variety of procedures that can be attempted. Choosing the path of assisted conception often provides a sense of hope at the beginning of a treatment cycle, and a continuing reminder of the loss with every cycle that does not result in pregnancy. As opposed to a death, which is the end of a life, an infertility diagnosis may represent the end of one experience – hoping to achieve a pregnancy on their own – and the beginning of a new experience –

making tough decisions, pursuing treatment or adoption, coming to terms with remaining childless, and, sometimes, pregnancy.

Feelings of guilt are another common response to infertility. This is especially true for women whose infertility may be associated with a sexually transmitted infection (Lasker & Borg, 1987), those who have previously had abortions, or women whose fertility may have been compromised by their decision to postpone pregnancy in order to pursue a career (Rothman, 1989). Sandelowski (1990) outlines the historical patterns of the medical community which spent the past century blaming women for their infertility. In the late nineteenth century, physicians blamed women's physiology for all cases of sterility – as long as one sperm could be identified, men were exonerated of blame. Portraying both infertility and the falling middle class birth rate as women's "fault," doctors specifically focused blame on the actions of those women who did not conform to the middle class norm. Behaviour such as pursuing careers, delaying pregnancy through the illegal use of birth control, or entering higher education were presented as the causes of women's infertility. Interestingly, this occurred during the women's suffrage movement, a time of increased lobbying for social changes such as political and educational rights for women (Sandelowski, 1990). This trend of blaming women for infertility continued into the 1940s, but then the rise of Freudian thought changed the culprit from women's actions to their psyches. Infertile women were told that their hidden fear of reproducing, or their hostility towards men were to blame; not surprisingly, women then blamed themselves. Sandelowski quotes a *Ladies Home Journal* article from 1946 in which the author claims she was only able to conceive after she stopped striving towards her own career and became happy in domestic life.

Women continue to be faulted, to blame themselves, and to feel guilty for their infertility. This may even occur in couples with male factor infertility – in these couples, Lasker and Borg (1989) found that the woman can feel guilty for being fertile while her husband is not. Some feminists suggest that the medical profession still inflicts guilt on infertile women – Rowland (1992) provides examples where women are personally blamed for either their own or their male partner’s fertility difficulties. She quotes one director of a fertility clinic as stating that most infertility in women is “self-inflicted” (Rowland, 1992, p. 257). Women may also be blamed for the fertility problems of men, accused of having “hostile mucous,” or “an allergic reaction to sperm” (Rowland, 1992, p. 257). Shanner (2000) questions why doctors never describe the cervical mucous as being “protective,” especially considering that the sperm are foreign proteins in the woman’s body. She argues that these judgmental terms imply that it is the woman who has an “attitude problem that confounds fertility; if only she and her mucous were less hostile or more ‘sperm friendly,’ everything would be fine” (Shanner, 2000, p. 152).

Even feminists need to be cautious of adding to women’s feelings of guilt. Sandelowski (1990) and Stanworth (1990) both point out that radical feminists who are categorically opposed to ARTs and view reproductive technology as a patriarchal effort to control women’s fertility often argue that infertile women’s use of reproductive technologies will jeopardize the future reproductive choices available to all women. This implies, inaccurately, that individual infertile women should take responsibility for the concerns of all women as a social group, and it could place additional guilt upon infertile women who want to use technologies (Sandelowski, 1990). Rothman (1989) also problematizes the tendency of some feminists to highlight infertility prevention over

treatment of infertility, as this viewpoint risks implying that an infertile person is to blame for not preventing it in her/himself. Rothman (1989) warns feminists to be cautious of how they deal with issues around the prevention of infertility, and to always remember that: “How much a person wants to have children, how well they learned that lesson, is not connected to the condition of their tubes, their exposure to infection, or to any other cause of infertility” (p. 142). The guilt that may be brought on by an infertility diagnosis can be profound, and should not be underestimated by feminists or medical professionals alike.

Women’s choices regarding IVF

Considering the complexities of women’s experiences with infertility, it is not surprising that women’s decisions regarding whether or not to take the medical/technological path can be fraught with ambiguities. A number of theorists have pointed out that the existence of ARTs, coupled with the lack of comparable alternatives, make it nearly impossible *not* to try reproductive technologies (Dumit & Davis-Floyd, 1998; Michie & Cahn, 1997; Rothman, 1989). “Sometimes the alternatives are not so much unpleasant as not alternatives in any real sense” (Michie & Cahn, 1997, p. 70), especially when we consider that the only alternatives which are perceived as acceptable are for the couple to abandon their hope of experiencing “normal” parenthood – pregnancy, birth, and genetic parenthood – or to make use of at least some form of reproductive technology. This perceived lack of choice is evident in the literature that gives voice to women’s experiences around making the decision of whether to undergo IVF. There are two major patterns in the literature exploring women’s sense of choice

regarding the use of IVF. Both patterns exemplify the perceived lack of alternatives and the complications involved in women's sense of choice related to IVF.

One prevalent pattern deals with women for whom the existence of IVF and the apparent lack of meaningful alternatives make it seem necessary to participate in IVF. Women in this group reported feeling like there was no choice to be made – either they used IVF, or dealt with never having their own child, which was not an acceptable option for many of them at that particular stage in the process of dealing with infertility, especially given the social expectation that women become biological mothers. Hence, for numerous infertile women in the existing studies (Barnby, 1995; Bartholet, 1994; Franklin, 1997; Stens, 1989; Stuart, 1989; Winkler, 1989), choosing IVF was not experienced as a choice at all. In addition, many of these women believe in the promise of technology, and thus they “take the technocratic imperative – *if it can be done, it must be tried* – and write their own variation – *if it can be tried, then I must try it*” (Dumit & Davis-Floyd, 1998, p. 7).

One participant in Franklin's (1997) ethnographic study exemplifies the ambiguity of this choice. She feels that couples who choose IVF “have no idea what they're going in for, or what it actually involves, because going in for IVF treatment you really are on your last resort” (quoted in Franklin, 1997, p. 120). Another woman expressed the view of IVF that “if this is what it takes [to have a baby] I'll just get on with it” (quoted in Barnby, 1995, p. 87). Stuart (1989), who remains in confusion regarding the complexities of her choice to undergo IVF, voices her own experience:

Superficially, the IVF programme offers me a simple choice – the chance to stay on the programme and perhaps have a child, or the chance to stop and accept my infertility. But my decision is not so clear cut – the stress, the constant uncertainty, my fear of the treatment's long-term effects and the lack of control

that I have over the treatment, make me wonder if I would have been better off *not having to make a decision*. Is it worth it? I just don't know. (p. 89. Emphasis mine.)

For women in this category, the fact that IVF existed made it a foregone conclusion that they would use technology in order to attempt to have a child.

The second pattern involves the experiences of women who did claim to see their decision as making a choice. However, this group expressed their central choice in negative terms: either not undergoing IVF in the first place, or terminating their participation (Barnby, 1995). Many of the women interviewed for Barnby's (1995) book fit into this category. Interestingly, Barnby is the only author cited here whose study located infertile couples who chose not to undergo infertility treatments at all. She cites one woman who had already undergone failed tubal surgery, and felt that she and her husband could not take the step to try IVF because "it [infertility] was beginning to take over" (p. 53) their lives. Some women who express an initial "need" to go through IVF later experience the decision to discontinue treatment as a choice. The same woman in Barnby's (1995) study who earlier spoke of her need to "just get on with it" if IVF increased her chances of conceiving, later speaks of how she and her husband came to the difficult decision to stop IVF after their second attempt. For her, there came "a point when we can't keep taking eggs out" (pg. 89); the highly medicalized nature of the IVF treatments evidently became more of a burden than a procedure that increased her sense of control over her fertility. Belk-Schmehle (1989) expresses a similar experience, as she began infertility treatments with a willingness to do whatever was necessary to have a biological child, but eventually felt it necessary to "withdraw from the medical merry-go-round" (pg. 32) and pursue other options. It is interesting that infertile women who do

not go through with IVF speak of their refusal as a decision, while often women who do go through with infertility treatments express the notion that there was no choice because the existence of IVF and lack of medical and social alternatives made it necessary to try. This difference reflects the strength of the technological and social imperative and the lack of accessibility to socially based alternatives that could enable more women who do use IVF to experience it as a choice rather than a necessity.

II. Systemic effects on choices

The options available to infertile people are shaped largely by social forces. While individual women or couples will likely view their options differently depending on their personal beliefs, the choices available to them may be greatly limited by social systemic factors. Sherwin (1989) discusses the gatekeeping role taken on by medical specialists who are in a position to make judgements that control access to ARTs. Often, these judgements are based on existing social biases (Sherwin, 1989). Gatekeeping procedures are widely used in fertility clinics to decide who is most deserving of treatment. Overall (1993) points out that gatekeeping serves to discriminate against infertile people in ways that fertile people do not have to face, since most fertile people are not prevented from having children on the basis of social circumstances.

The most common social category used to exclude people from fertility treatments is their economic status. The ability to pay for treatment, and therefore the economic class of the person or couple, is a major exclusionary barrier (Lasker & Borg, 1987; Sawicki, 1991; Sherwin, 1989, 1992). A review of six IVF clinics in Canada reveals that ample economic resources are necessary, as fees for one treatment cycle of

IVF range from \$3000 to \$4500, plus the cost of drugs, which can range from \$800 to \$5000 per treatment cycle (The Fertility Centre; Heartland Fertility and Gynecology Clinic; Halifax Assisted Reproductive Technologies; IVF Canada; London Health Sciences Centre, Reproductive Endocrinology and Infertility Programs; Toronto Centre for Advanced Reproductive Technologies). Leader (1999) points out the discrepancy in the Canadian health care system, wherein the provincial and federal governments fund investigations into the causes of a couple's infertility – spending an average of \$770 per couple – and cover expensive surgical interventions to repair fertility, but they do not cover the costs of ARTs. This leaves Canadian infertile couples in a situation where they need to have access to \$4000 to \$9000 for only one IVF attempt. The treatment is even more expensive for anyone who does not live in or near a major urban area with an IVF clinic¹¹, as the cost must include travel and hotel expenses, as well as the flexibility to be absent from their workplace. A clear link between funding and use of treatments can be seen in Massachusetts, where health insurers have been legally required to cover infertility treatments since 1990. This funding has made the IVF clinic at Beth Israel Hospital in Boston the busiest clinic in the U.S., with more procedures per year than any other American clinic (Marsiglio, 1998).

While economic status is the most significant barrier to access of ARTs, women are also excluded because of their status in other social categories. The realities of social stratification mean that people of colour are more likely to be unable to afford high-tech fertility treatments than are white people (Rutherford, 1992). This occurs despite the fact that women of colour have higher rates of infertility than white women (Greil, 1991; Rothman, 1989; Rutherford, 1992; Van Dyck, 1995). Although the options open to

infertile people are affected by their class and race, these are primarily the result of broader social factors like health care policy decisions and the capitalist system. In a more clearly discriminatory vein, however, the clinics themselves are free to refuse access to single women and lesbians (Cole, 1995; Sherwin, 1992). Cole (1995) states that under British law, women are not required to be married in order to be allowed access to ARTs; however, many clinics refuse services to single and lesbian women and justify their refusal with unproven references to the “best interest of the child.” These judgements are based on an assumption that a potential father needs to be present, but the clinics who uphold this policy do not provide any specific reference as to why this male presence is best for the child (Cole, 1995). Furthermore, in Britain, lesbians and single women who acquire donor sperm and perform self-insemination outside of a clinical setting will be required to identify the child’s father if they ever apply for welfare. The state can then force the sperm donor to contribute financially before any public money is exchanged. Women who receive donor sperm within clinical settings, as well as the men who donate the sperm, are not subjected to these controls (Cole, 1995). Clearly, this policy is a method of controlling those women who may make private arrangements if clinics refuse to provide services to them. Similarly, the Australian federal government recently cut off Medicare funding for donor insemination (DI)¹² for single and lesbian women, based on the notion that they are “socially infertile,” not “medically infertile”¹³ (Whelan, 2000). Again, this policy clearly aims to limit ART access for women without a male partner. Social policies that are routinely used to limit access to ARTs discriminate against infertile people on the basis of class, race, and sexuality.

Restrictive social policies are also an obstacle for infertile people who choose to adopt. In comparison to gatekeeping practices in ARTs, adoption policies are similarly rigid, invasive, and expensive. Infertile people who are restricted from accessing ARTs are likely to also be excluded from adoption. Stanworth (1990) states that in Britain, adoption agencies may refuse women who fit any of the following criteria: are single, over 30 years of age, are not heterosexual, have jobs, have had psychiatric referrals, have disabilities, intend to continue their attempts to get pregnant, or have any sort of unconventional lifestyle. The on-line literature for one American based non-profit adoption agency states that living in an apartment or other small home as grounds for some agencies' refusal of couples. This agency, Adoption Services, also estimates that couples can expect to spend between \$16,000 and \$34,000 (US) to adopt one child. The limiting social factors and the prohibitive expenses of adoption are complicated by the shortage of healthy (especially white) infants. The waiting period can rise from months to years based on the race, age, and health of a child, and these factors may also increase the expectations and costs associated with adoption (Adoption Services).

The gatekeeping practices involved in adoption and ARTs reflect a society in which people who must pass through institutional controls to become parents are held to stricter, yet more arbitrary standards than people who have genetically related children without assistance. For instance, although being single may close off a woman's access to ARTs or adoption, if she were to become pregnant on her own, social agencies would not remove the child from her care because she is single. Clearly, there are different standards for people who need the assistance of medical and social agencies in order to become parents. Holding potential adoptive or IVF parents to a much higher standard

creates an unfair system wherein infertile people are required to be wealthier, healthier, younger, and more stable than those who can easily have biological children. This partly reflects a market-driven system for distributing children, wherein a shortage of the “product” allows the “merchant” to choose the highest bidder, which is more likely to be the one with a bigger house and a stay-at-home mother, rather than the parent(s) that may have the most love and support to offer. These factors are likely to put adoption out of reach for many infertile people, and, especially in cases where ARTs are covered by medical insurance, may leave the pursuit of biological parenthood through ARTs as the only potential option. Woollett (1991) quotes a woman who attempted both adoption and medical treatments, and concluded that, although the hospital easily allowed her access to IVF, they were far less interested than the adoption agency in whether she and her husband were fit to be parents. For this heterosexual woman with financial resources, it appeared as though “ ‘because the children were to emerge from our own genitals we seemed to be exonerated from all responsibilities’ ” (quoted in Woollett, 1990, p. 52). Sherwin (1989) points out that as an alternative to Western society, which restricts access to social parenthood based on outdated social biases, a “feminist world-view would concentrate on seeing that all children are cared for before fostering elaborate, expensive attempts to custom-design genetically related children” (p. 265). For infertile couples who may have to remain childless because of the perceived inadequacy of their bank accounts, and for children who may not end up in a home with loving parents, the fact that social biases can limit access to parenthood is tragic.

III. Men's experiences of infertility

Infertility affects men differently than women, but this fact has not received as much attention as the study of women's responses to infertility. In relation to potential parenthood, the societal expectations placed on men are very different from those that apply to women. Also, the social norms related to the male gender role are distinct and these norms create a social context in which men's expectations of their adult lives are much different from women's. Men have a unique history with the social meanings of paternity. In addition, physiological paternity allows men only one avenue to have a genetically related child – impregnating women with their sperm. Given the gender differences in experiences of reproduction, it is not surprising that men's experiences with infertility are also different from women's. However, it is important to recognize that men's relationship to infertility is just as complex and ambiguous as women's experiences. This section examines those differences, and the reasons behind them. Since men's experience of infertility is greatly affected by the social norms surrounding fatherhood and the male gender role, I will first examine the popular social image of fatherhood and its relation to the normative portrayal of their gender role. The broader social context of men's socially prescribed roles will serve as a basis for my further exploration into men's experiences of infertility, how men attempt to solve infertility, and the effect of infertility on their marital relationship.

Social expectations of fatherhood

There is one certainty about contemporary definitions of fatherhood – the social meanings attached to fatherhood are in flux (Eichler, 1997; Griswold, 1993; Knijn, 1995; Lamb, 1987; Marsiglio, 1995, 1998). Many social changes have affected social beliefs regarding fatherhood, leaving the norms around fatherhood in a state of confusion. Many of the social structural changes that have greatly altered the social perception of fatherhood relate to the politicization of fatherhood that was brought on by the feminist movement, the widespread entry of women into the labour force, and the drastic increase in rates of divorce and remarriage (Eichler, 1997; Griswold, 1993; Lamb, 1987; Knijn, 1995; Marsiglio, 1995, 1998). Social changes to the fatherhood role, including new attitudes about the male gender role that have encouraged men to be more involved with their children (Griswold, 1993; Knijn, 1995; Marsiglio, 1998), and the movement toward increased individual self-reflexivity, have led men to be more conscious of their fatherhood role (Knijn, 1995). As a result of these changes, the widespread image of fatherhood has portrayed men spending more time, and enjoying more emotionally involved relationships, with their children. At the same time as men's social relationships with their children are receiving more attention, the increasing use of reproductive and genetic technologies maintains the focus of the genetic relationship as a predominant defining line between genetic and social fathers. As well, the use of DNA testing is growing in popularity as a way of determining a child's "real" father (Marsiglio, 1995). Thus, the social meanings of fatherhood are becoming increasingly diverse and ambiguous. Strathern (1992) states that the importance of social and biological relationships appear to be increasing simultaneously. Knijn (1995) emphasizes

that this current confused state of fatherhood – she considers it a crisis – nevertheless has the potential to bring about positive social changes and progressive new ways of thinking about fatherhood.

These changes do have the potential to enable positive changes to social meanings of fatherhood, but researchers also caution that, so far, major changes have only occurred on an ideological level. Eichler (1997), Lamb (1987), and Griswold (1993) stress that although the normative image of fathers' roles has changed to one in which fathers participate more in children's lives, the actual behaviour of fathers has not undergone much change. Lamb's (1987) study of fathers' conduct found that the time fathers spend with their children – which does not increase when mothers are employed outside of the home – is spent primarily in play activities, while mothers continue to fulfill the caregiving duties. Griswold (1993) echoes this finding, stating that men tend to desire increased levels of companionship with their children, but do not want to engage in the work of daily child care, which continues to be primarily the responsibility of mothers. This conclusion is related to another finding by social scientists: men do not know how to live up to the new cultural expectations of fatherhood. Men tend to feel unskilled and unprepared for taking on the role of involved fathers, and thus feel insecure about their fatherhood role in general (Griswold, 1993; Knijn, 1995).

In addition, the increase in divorce rates mean that many men do not live with their biological children; yet, due to remarriage, they may live with children to whom they are not biologically related, but whose biological father is still involved in the lives of the children. Marsiglio (1998) suggests that there is a social perception that men who

live with their biologically related children tend to conform to the “new fatherhood” image and are perceived as being more involved with their children than fathers were in the past. Thus, a man who lives with his wife and biological children – who lives within the normative nuclear family structure – is viewed as being a caring, involved, ideal father. Once the structure of a nuclear family is broken by divorce, the image of the involved father does not apply. Hence, the new image of fathers is related largely to those who maintain the appearance of having a genetic relationship with their children by virtue of conforming to the idealized nuclear family.

The social ambiguities around fatherhood are also evident in the legal system’s treatment of cases of disputed fatherhood. Vlaardingerbroek (1995) discusses the Dutch legal system’s treatment of cases of disputed fatherhood. In the process of changing their laws to determine the legally recognized father, they initially considered all bases for fatherhood to be equivalent, so that social and biological fathers were considered to have equal rights. However, this had the unintended effect of giving credence to claims from sperm donors and rapists. They have since changed the law to emphasize social fatherhood, so now the most important factor is that the man has a familial relationship with the child. Almond (1995) and Cole (1995) caution that this result may not mean social fatherhood is taking precedence over biological fatherhood. Rather, they claim that rulings based on men’s social relationship with children are based on traditional (pre-DNA testing) definitions wherein “the father” was defined as the man who was married to the child’s mother. In this way, these theorists claim that legal rulings that favour the man with whom the child’s mother has a relationship reflect a continuing social preference to maintain the appearance of the nuclear family, and therefore these rulings

reinforce the normative structure of the traditional nuclear family (Almond, 1995; Cole, 1995). Whether or not this is true, legal confusion regarding fatherhood does reflect the rapid social changes that are occurring. Perhaps instances such as these legal issues reflect Strathern's (1992) point that the ambiguous notions of fatherhood have led to a situation in which both social and biological fatherhood are simultaneously increasing in importance.

Men's experiences of infertility

Men's experiences of infertility are closely related to men's gender role, and to the social expectations of fatherhood which encourage men to be close to their children but do not call for the same level of commitment expected from mothers. Generally, men's experiences differ from women's because they are not as deeply affected by infertility; both women and men in infertile couples reportedly view it as more the woman's problem than the man's (Greil, 1991; Meerabeau, 1991). Greil (1991) found that most men in infertile couples regarded infertility as a difficulty they could get over. He attributes this to the fact that, while parenthood is normative for adult men, it is not as central to the male gender role as motherhood is to women's role – men are less likely to be seen as deficient adults if they do not have children. Unlike women, who tend to be greatly affected by infertility regardless of who is the infertile partner, men's experiences related to infertility are largely shaped by whether the couple is diagnosed with male or female factor infertility (Greil, 1991; Nachtigall et al., 1992). Researchers have found that men in couples where the female partner is infertile are much less affected by the couple's infertility than men who are the infertile partner. In couples with male factor

infertility, the man is likely to experience his infertility as a stigma, to feel it as a loss, and to experience a drop in self-esteem (Greil, 1991; Nachtigall et al., 1992). However, other men, including those in couples with female factor infertility, do not feel greatly affected by their infertility. The finding that men can have very different responses to infertility is partly a reflection of the confusion around societal meanings, expectations, and realities of contemporary fatherhood.

For men who are infertile, negative feelings of stigma and loss tend to be more connected to their masculine identity than to their role as potential fathers (Marsiglio, 1998). Nachtigall et al. (1992) found that the social stigma and personal loss experienced by infertile men were both associated with a sense of potency and virility. Men in the study reported feeling the loss of potency and the resulting social stigma because they lacked the ability to impregnate their wives, which was important to their male gender identity. Furthermore, Lasker and Borg (1987) found that in couples with male factor infertility, the woman is often willing to mask her partner's infertility by telling others that she is the one who is infertile. Men's sense of shame is connected to the widespread misconception that male infertility is related to impotence and sexual inadequacy¹⁴ (Lasker & Borg, 1987; Marsiglio, 1998; Nachtigall et al., 1992). Lasker and Borg (1987) suggest that a man's perceived loss of masculinity may also be related to a decrease in the man's dominance in the relationship. This possibility arises because when the man is infertile and the woman is the fertile partner, his vulnerability (itself related to his reduced sense of masculinity) may grant her more power than either of them are accustomed to. Further, Marsiglio (1998) points out that men who are experiencing infertility are not able to easily disassociate their perceptions of themselves and their

masculinity from the stereotypical perceptions of others. This creates a situation in which the social notions that connect masculinity to the ability to reproduce mean that many men with male factor infertility will likely feel like failures in their male gender role.

Infertility may affect a man's masculine identity in cases where he is the infertile partner, but many men, even those who are infertile, are not as greatly affected by their infertility as women. Greil (1991) quotes a participant who states: " 'My personal infertility has never tormented me. I've sometimes wondered if I have some sort of mental problem or something that it hasn't [bothered me]. It's never really eaten away at me. ... I don't know, but I just don't feel that sorry for myself' " (p. 57). This man obviously doesn't feel overly affected by his infertility, but at the same time he feels that he should be more affected and is worried about his lack of response. Perhaps this reflects a disparity between the social image of fatherhood as an important part of men's lives, and the actual experiences of men, wherein fatherhood is not central to many men's sense of self. This divergence from the idealized image of fatherhood is evidenced by the tendency for men in infertile couples to be less affected by their infertility, and for men who do have children to spend less time with them than the image suggests. It is no surprise that infertile men respond to infertility with some level of confusion, particularly considering the ambiguity of the social roles of masculinity and fatherhood in general.

If some infertile men feel rather unaffected by their infertility, it is evident that men who are only part of an infertile couple in which their partner is infertile are even less likely to feel personally affected. Nachtigall et al. (1992) found that men with infertile partners are more likely to feel like failures as marriage partners than failures as men. Findings indicate that being part of an infertile couple with female factor infertility

does not tend to affect a man's sense of gender identity in the same way that men with male factor infertility may be affected (Greil, 1991; Nachtigall et al., 1992). For men whose partners are infertile, the major issue is the effect that the infertility has on their marriage. The men without male factor infertility in the Nachtigall et al. (1992) study reported that their partners were preoccupied with infertility, and that it took the men time to understand the emotional depth of their wives' response to infertility. However, once they realized the enormity of the issue and began to see it as a potential threat to their marital relationship, they became committed to finding a solution. This mirrors Greil's (1991) finding that men and women tend to view infertility as the woman's problem.

Men's experiences with choices and undergoing treatment

If men are less concerned with infertility than women are, then to what extent does this affect men's role in the decision-making process, and the experience of going through fertility treatments? Lasker and Borg (1987) found that, in most cases where the couple disagrees about how to deal with their infertility, the wishes of the husband would prevail. Even in cases where the woman appeared to be more interested in "solving" their infertility, Lasker and Borg found that there was a degree of subtle pressure from the husband, mostly related to his wish for her to seek treatments that would allow them to have a genetically related child. Greil (1991) concurs that this could happen because when women seek a solution to their infertility, they tend to be more driven to acquire a baby than their partners. He postulates that this can lead couples to choose the technological path because "if a wife were motivated to do whatever it takes to have a

baby and if her less motivated husband preferred childlessness to adopting a baby that was not 'really' his, then optioning for IVF, surrogate motherhood, or other less conventional options might seem like a natural [*sic*] solution" (Greil, 1991, p. 70). A number of theorists suggest that this is likely to happen because the importance of paternity in a patriarchal society creates an environment in which men are more likely than women to want the genetic relationship with any potential children (Corea, 1985; Marsiglio, 1995, 1998; Sherwin, 1989). The combination of women being more desirous of solving their infertility by becoming parents, and men's tendency to prefer a genetically related child may lead many couples into choosing technologies that will allow them to have a biological child. It is also likely that within the context of ARTs, the normative power of choosing the avenue that allows a couple to have a genetically related child will have a great impact on those whose treatment options do not allow them the preferred choice of a genetically related child.

Considering the centrality of the genetic relationship as a defining line for men's relationships with children, couples who use donor sperm are in a unique situation regarding the complexity of social norms around paternity and men's desire for genetic relationships will likely affect their experience of becoming social fathers. Cussins' (1998) fieldwork in infertility clinics found that accepting donor eggs is easier for women than using donor sperm is for men. This finding correlates to the belief that women are more likely to be open to the idea of adoption than men are (Cussins, 1998; Stanworth, 1987). Also, it is likely related to the fact that using donor eggs gives women the opportunity to experience pregnancy, which allows them to have a physical connection, even though the child is not genetically related. Obviously, men cannot have this

experience, so for them, giving up the genetic tie and using donor sperm means abandoning their only physical link to the child. Additionally, Marsiglio (1998) argues that in couples who use donor sperm, the men are more likely than the women to feel uncomfortable and uneasy about their parental role because they are not genetically related to the child. However, men who have strong relationships with their partners may draw on the bond they have with their partners in order to indirectly share the gestational experience, which thereby prevents them from feeling completely alienated by their lack of a genetic contribution (Achilles, 1986; Eichler, 1997; Marsiglio, 1995).

Drawing on the bond with their partner will not alleviate all of the men's concerns, however. Social fathers using donor sperm are more likely than genetic fathers to worry about whether the child will share their physical features and personality characteristics (Marsiglio, 1998). This concern leads to a situation in which it is common for couples to choose donor sperm according to the donor's resemblance to the man's physical and personal characteristics (Achilles, 1986; Andrews, 1999; Haimes, 1990). Picking and choosing between characteristics of a sperm donor often extends to qualities that are unlikely to be genetic – such as personality, musical ability, and common hobbies (Andrews, 1999; Hubbard & Wald, 1997; Kurtis, 1999). Other tactics that are used to alleviate men's alienation when they lack a genetic connection are secrecy and anonymity. According to Achilles (1986), the widespread practices of secrecy and anonymity in couples using donor insemination reveals the underlying importance attached to the paternal genetic tie, and the ensuing shame associated with the lack of that link. This desire to appear genetically related is an attempt to maintain the appearance of

conforming to the nuclear family structure (Haimes, 1990), and it exemplifies the centrality of the genetically related nuclear model, especially in relation to paternity.

Stanworth (1987) postulates that men's tendency to value the genetic relationship comes out of social arrangements in which women spend more time with their children, and therefore form stronger social ties. This reality may make men feel anxious about connecting with their children and can lead them to value the genetic tie as a meaningful basis for developing a relationship with their child. Marsiglio (1995, 1998) links the importance men place on having a genetically related child with male notions about masculinity. He believes that men who combine having a genetically related child with ideas about their potency and sexual adequacy will be more reluctant to use donor sperm because the use of donor sperm compromises their masculine identity. The desire to have biologically related children may be further connected with men's notions regarding their lineage. In the documentary "Baby, It's You," filmmaker Anne Makepeace tracks the attempts made by herself and her husband to get pregnant. In this film, her husband responds to the question of why they do not adopt a child: "I kind of wanted to have my own baby, you know, my own child, who'd be related to my family" (Makepeace, 1997). Through the social constructions that view men with their "own" children as sexually potent, and that declare genetically related children as somehow *more* related to a father and his family, men tend to value the genetic relationship with their children more than women.

Men who use donor sperm may feel alienated from the reproductive process; furthermore, the treatment process itself can elicit feelings of alienation from all men (regardless of whether their gametes are being used) because the process tends to separate

men from treatment (Meerabeau, 1991). The individualistic medical model in which treatment occurs does not allow couples to experience treatment in a joint manner. Meerabeau (1991) observed the way three British fertility clinics attempted to deal with couples, and found that husbands were frequently relegated to a minor, supporting role. Although 70% of husbands attended the first appointment at the fertility clinic, all of the clinics focussed the initial appointment primarily toward the woman, regardless of whether the couple's infertility was attributed to male or female factor. Even in the case of men whose infertility was severe enough to necessitate medical attention, these men were treated as merely the husbands of the patients rather than as patients themselves (Meerabeau, 1991). This reflects a lack of medical treatments designed to treat the man for male factor infertility. The only ART that is aimed at treating male infertility, intracytoplasmic sperm injection (ICSI), necessitates that the female partners also undergo IVF. One Canadian IVF clinic reports that they perform ICSI in 56% of their patients (The Fertility Centre) – given that only one-third of infertility cases are due to female factor infertility (Achilles, 1993), this means that up to two-thirds of women undergoing IVF in order to have ICSI performed may in fact be fertile. This treatment leads to a situation in which healthy women are routinely medicalized – receiving intense fertility drugs and undergoing invasive procedures – because of their husbands' infertility. From a feminist perspective, this is extremely problematic since healthy women should not be asked to assume these types of physical risks in order to treat another person's medical problem. This situation represents a major limitation to modern fertility treatments, as the healthy partner is treated like a patient, and the partner who is infertile is not allowed to play a major role in attempting to solve their infertility.

It is not surprising, then, that a man experiencing infertility treatment may often feel reluctant and torn as he witnesses his partner's physical and emotional difficulties. Mentor (1998) describes his experience of his wife's IVF procedure as being schizophrenic and ambivalent, with different voices delivering contradictory messages. Men's instrumental part in the process of IVF and ICSI is (at most) limited to their depositing sperm for use in the conception attempt. Although this is often difficult in high-pressure, time-sensitive, clinical surroundings (Greil, 1991; Lasker & Borg, 1987; Makepeace, 1997), it is still a much more limited role than that of their female partners. Among Lasker and Borg's (1987) participants, many men report difficulties in watching their partners go through emotionally and physically painful treatments. These difficulties may be exacerbated for those men who are the infertile partners, but whose wives are the ones going through treatment. Women in these cases can feel especially resentful towards their partners because of their limited level of participation, creating the possibility for problems within their relationship (Lasker & Borg, 1987). In addition, any aspect of the fertility treatment process that alienates the man from his partner will make the man feel further estranged from the whole process (Marsiglio, 1998).

Therefore, although men generally feel a lesser need to solve their infertility by having a child, they are more likely than women to prefer solutions that allow them the chance of having a genetically related child. Since the social meanings of fatherhood are currently in flux, men's experiences with infertility, medical treatments, and the value placed on the genetic tie are not absolute. In fact, the current changes to the fatherhood role have the potential to alter men's patriarchal connection to the genetic tie. Should the social image of fathers as involved parents who spend time with their children continue,

there is the potential to create change in the behavioural patterns of individual fathers. Moreover, if fathers gain the skills and receive the social support necessary for them to confidently live up to a caretaking role, and they embrace both the work involved along with the enjoyable aspects, then men have the potential to develop much stronger and deeper social relationships with their children. In turn, this reconfiguration of familial ties could mean that men may become more open to other options, such as adoption and other forms of social parenting.

Engels (1970) states that the family “must advance as society advances, and change as society changes, even as it has done in the past. It is the creature of the social system, and it will reflect its culture” (p. 74). ARTs are one contemporary phenomenon that has the potential to change the family in ways that mirror other social changes. In practice, though, ARTs seem to encourage the status quo – an emphasis on the nuclear family structure and privileging of the biological relationship within that family. Infertile women and men experience their infertility and technological treatments in ways which are affected by the wider social views of family formation. Since these social views affect intimate familial relationships, they reveal a lot about Western society. The fact that genetic relationships are not just the social norm, but are, indeed, the favoured, privileged relationship is significant.

In addition, the technological options that Western society offers to infertile couples are constructed within this social context that favours genetic ties. Reproductive technologies, particularly IVF, tend to reflect the patriarchal preference for the genetically related nuclear family model. Indeed, the primary purpose of IVF is to enable an infertile couple to attempt to create their “own” genetically related child. The

idealization of the nuclear family model has led to the current situation in which numerous infertile couples are willing to take great personal, emotional, financial, and physical risks to have a chance to build a socially normative family. While IVF technology has greatly increased the choices available to some infertile people, the context in which IVF was developed and is currently practiced is ambiguous and often inconsistent in meeting the needs of many infertile women. Much of the ambivalence originates from the fact that IVF is situated at the complex intersection of science, technology, and medicine.

Chapter Three: Science, technology, medicine, and the construction of IVF

As social views of reproduction construct the normalization of the nuclear family, so, too do social values affect the development of reproductive technologies. The social norms around reproduction and the nuclear family construct the social environment in which IVF makes sense: if Western culture did not privilege the biological tie between parents and children, then infertility would not be such a negative experience for so many people. If social parenthood or childlessness were viewed more positively, or if people had the opportunity to develop close social relationships with children in settings other than the nuclear family, then IVF would not be perceived as a necessary technology. Therefore, the social norms around reproduction and family structure make up an important part of the context in which IVF exists. Furthermore, the context that enables IVF also involves the intersection of three major areas: science, technology, and medical care. Each serves a unique, yet interconnected purpose in the development, expansion, and legitimization of particular reproductive technologies. This chapter discusses the way in which social perceptions of science, technology, and medicine have contributed to the development of *in vitro* fertilization as a treatment for infertility. I will thus examine how Western society views these three interconnected domains, and how the social perceptions associated with science, technology, and medicine have contributed to the current form of IVF. Science, technology, and medical care play integral roles in the ways ARTs are being developed and practiced, but here I focus on only a few of the major ways in which each discipline works to shape reproductive technologies. I discuss how each of these three domains helps to construct beliefs around genetics and the privileging of biological relationships in reproduction. My analysis focuses on the way

that contemporary practices within science, technology, and medicine affect women. I then shift to focus on how IVF was developed within the broad context that includes the social norms regarding reproduction, infertility, and families, as well as science, technology, and medicine. My analysis examines the ideologies underlying IVF, the current way this medical technology is practiced, and how these practices are both shaped by and reinforce the position of women in society. As well, I consider the positive and negative effects that IVF has on women. By considering the context in which patients experience fertility treatment, I aim to provide a thorough analysis of IVF.

I. Science

Most citizens of Western society tend to have faith in the ability of science, technology, and medical care to determine what is safe and healthy enough to be made available to the general population. People have faith in these disciplines largely because individuals in society believe in the ability of scientists, doctors, and technicians to make objective determinations – considering only what are perceived to be the objective “facts,” about human relationships with the natural and technical worlds. This emphasis on “facts,” however, tends to ignore considerations regarding the broader social context on the people who carry out scientific experiments, develop new technologies, and determine the practices of medical care. These people are no less social beings than are people in any other walk of life, and there must be recognition that their place in Western society, particularly their positions within the hierarchies of power, inevitably affects their professional judgements. The social context in which science, technology, and medical care are all embedded plays a significant role in shaping ARTs, and the

misrepresentation of all three areas as purely objective plays an important part in the development and use of ARTs.

Science¹⁵ – specifically biology, genetics, and reproductive biology – contribute to the development and acceptance of ARTs by providing the knowledge that is the basis for new medical practices. This claim to knowledge also lends science a great deal of authority with respect to the ART enterprise, which arises from the authority that is accorded to science by the whole of Western society. Feminist critics of science view the strength of the authority of science by comparing social attitudes regarding science to those applied to religious belief (Harding, 1993; Mitchinson, 1998). According to Harding (1993), science is treated like a religion because in Western society there is an implication that scientists are “true believers,” who alone have access to the one true story about the world and resist the influence of outsiders. Haraway (1997) finds evidence of this in the resistance of scientists to the analyses of feminists and other critical groups. She argues that scientists of what she calls the “old orthodoxy” are fearful that the recommendation to identify science as a cultural practice will open science to outsiders’ redefinitions of what counts as scientific knowledge, thereby threatening the purity of their discipline. Harding (1993) also argues that, like religious clergy, scientists are regarded as elites who are morally superior to average (non-scientific) members of society. In light of the faith society places in the authority of scientific research, it is imperative to critically examine how this institution is socially shaped, and the consequences that this high level of authority can have on the ways in which science shapes people’s relationships with themselves and others.

A number of feminists counter the common social perception of science and biology as presenting the objective truth with the observation that science is affected by its social context (Birke, 1999; Haraway, 1997; Harding, 1993; Hubbard & Wald, 1997; Martin, 1991; Rothman, 1998; Wajcman, 1991). They argue that science must acknowledge that the dominant social, historical, and cultural context in which all Western scientists live and work affects the practice of science (Rothman, 1998; Spallone, 1992). Hubbard and Wald (1997) state:

Scientists are not detached observers of nature and the facts they discover are not simply inherent in the natural phenomena they observe. Scientists construct facts by constantly making decisions about what they will consider significant, what experiments they should pursue, and how they will describe their observations. These choices are not merely individual or idiosyncratic but reflect the society in which the scientists live and work (p. 7).

Maintaining the myth of objectivity is harmful to society because there are instances where scientists may promote their own personal views or motivations without being discovered (Basen, 1994; Hubbard & Wald, 1997; Spallone, 1992). One current example of this difficulty is the role played by scientists' personal financial interests – an increasing problem in the field of biotechnology. Hubbard and Wald (1997) provide a brief glimpse into this problem when they point out that almost one-third of the faculty members in the biology department at the prestigious MIT have formal ties to commercial biotechnology companies. Some feminists caution that personal economic interests may affect research, findings, and recommendations that scientists make to health and government bodies (Basen, 1994; Hubbard & Wald, 1997; Spallone, 1992). Even in cases where scientists attempt to prevent their personal interests from affecting their science, the fact that scientists are social beings living in Western culture makes it likely that their ideas will tend to support the social norm, yet their ideas are presented to

the general public as objective fact and are interpreted as such (Hubbard & Wald, 1997; Rothman, 1998; Spallone, 1992).

In critiquing the practice of science, a feminist critique points out that the workings of the physical world are, for the most part, independent of the practice of science. What is at issue is the way science encourages people to interpret the physical, or “natural” world, which in turn affects human interaction with “nature.” Harding (1993) emphasizes that the pursuit of science takes the physical world and turns it into an object of knowledge, and it is this process that differentiates the study of “nature” as a pursuit from the mere existence of the physical world. She is critical of scientific education for failing to emphasize that “nature-as-an-object-of-knowledge is always cultural,” (Harding, 1993, p. 1). By separating “nature” from “nature-as-an-object-of-knowledge,” Harding is able to limit her critique to the study of the physical world without implying that scientific findings are necessarily incorrect. Many feminists, and especially feminist scientists, emphasize that critiquing the perception of science as objective does not mean feminists should reject all science or its findings. Since the physical processes being studied will remain the same, the question is determining how culture affects the way the physical world is studied, described, interpreted, and imagined (Birke, 1999; Harding, 1993; Haraway, 1997).

One problematic scientific practice that occurs under the veil of objectivity is the tendency to conduct research and present findings that are reductionist. Reductionism in the biological sciences reduces people to their smallest parts, viewing them as a collection of discrete parts, rather than as whole human beings (Hubbard & Wald, 1997), and ignoring the holistic totality of bodies and lives that exist in wider contexts (Birke,

1999). Feminists such as Lippman (1993, 1998) and Rothman (1998) are critical of biology for its reductionism that removes humans from their social, political, and economic contexts. Many theorists are also becoming increasingly concerned as reductionism is taken to a new level with the dominance of genetics in contemporary scientific research (Asch & Geller, 1996; Condit, 2000; Hubbard & Wald, 1997; Lippman, 1993, 1998; Rothman, 1998; Spallone, 1992). These feminists are critical of scientific reductionism for its underlying assumption that the physical world can only be understood by breaking it up into parts, and for the tendency of reductionism to promote “magic bullet” answers (Birke, 1999). In science’s frequent failure to consider the contexts of people’s lives, simplistic explanations are often given for complicated problems. Furthermore, the process of reducing biology into parts decontextualizes and depoliticizes the study of people’s bodies – ignoring social causes and potential social solutions to health problems.

The emergence of genetics¹⁶ as a leading element of research has led individualistic reductionism to an extreme point, by not only individualizing illness, but taking it to the minutest level of the individual – the level of one’s DNA (Birke, 1999; Lippman, 1993, 1998; Rothman, 1998; Hubbard & Wald, 1993). Lippman (1993) suggests that testing for genetic susceptibilities reduces people to their genetic make-up, while ignoring the political, economic, and social contexts of their lives. One example is the American research into developing a screening program to look for children with genetic susceptibility to lead poisoning (Asch & Geller, 1996; Lippman, 1993). Although the major causes of lead poisoning are poverty and substandard housing in buildings that use lead paint – “Babies who are well fed and have adequate housing do

not eat the paint chipped off crumbling walls” (Lippman, 1993, p. 58) – scientists suggest testing for susceptibilities and then treating children who are at risk individually. This is not going to solve the problem that poverty (Lippman, 1993) and environmental toxins (Asch & Geller, 1996) pose to health, but it is a perceived solution that sounds simple and takes the onus off governments to tackle the broader issues, like alleviating poverty.

Lippman (1993) argues that the predominance of science that reduces real, complex problems to the genetics of individuals is problematic not merely because of the consequences, but also because the whole individualistic premise ignores social and environmental factors that can contribute to health problems. Furthermore, the presentation of reductionist science as objective fact closes off discussion of any other causes, especially social causes for health problems (Lippman, 1993; Rothman, 1998). Reductionist arguments that come from scientists hold a great deal of sway, a fact that Rothman (1998) emphasizes in regard to genetics when she ironically states that “genetics is the single best explanation, the most comprehensive theory since God” (p. 13). Reductionism, and particularly genetic reductionism, looks at only one aspect of the situation, and comes up with one test or “solution,” while obscuring the need for any social change that might actually provide long-term solutions (Asch & Geller, 1996; Condit, 2000; Lippman, 1993, 1998; Rothman, 1998). Thus, reductionist science provides a distorted, oversimplified version of the factors affecting physical processes (Hubbard & Wald, 1997). The perception of science as objective allows reductionist findings to be interpreted as scientific fact, encouraging people to believe partial “truths” about the physical world.

In addition to reductionism, many feminists are critical of genetics-focused science for its promotion of deterministic notions that threaten to reduce a person's identity to their genes (Asch & Geller, 1996; Birke, 1999; Condit, 2000; Hubbard & Wald, 1997; Rothman, 1998). Just as biological determinism, expressed through ideas of women's frailty or physical inferiority to men (Dowling, 2000; Ehrenreich & English, 1978), have been problematized, feminists are now identifying the problems with genetic determinism. The scientific focus on genes as the sites for a wide range of explanations for human health, illness, behaviour, and lifestyles – including the false notions that black people are genetically programmed to be better athletes (Marks, 1995), and that homosexuality is genetic (Lippman, 1998; Marks, 1995; Rothman, 1998) – contributes to notions that humans are determined by their genetic make-up. Determinism can have extremely harmful effects on people's lives, as it removes the notion that people are agents of change both in their own lives and the lives of others. Genetic determinism tends to represent genetics as being the opposite to choice, predetermining life in ways that are inevitable and unstoppable (Rothman, 1998). The idea that genes are beginning to be viewed as factors in shaping future destinies is related to the notion that genes are integral in defining one's identity (Condit, 2000; Rothman, 1998); Rothman (1998) goes so far as to state that a person's genome is taking the place of the "soul," because DNA is increasingly perceived as containing the essence of a human being.

Alarming, members of Western society place so much power in science to determine the truths about humanity, they fail to recognize that the perceived objectivity of science is limited. The power given to science leads to the legitimization of genetic determinism to such an extent that society tends to perceive genetics as the cause of many

disorders (Asch & Geller, 1996), and to focus on genes as deficient (Asch & Geller, 1996; Condit, 2000). When science promotes the notion that genes predetermine people's lives, it supports an agenda that is always political as much as it is scientific. By encouraging society to recognize genes as requiring monitoring and repair, science then supports the furthering of individualistic, reductionist science that ignores the contexts of people's lives, in favour of complex scientific, and often technological, solutions to health problems and potential health problems. Greene (1999) points out the political motivations and fatalism inherent in this view by arguing that if everything significant about humanity is in our genes, then movements toward social and political change are bound to fail. These scientific solutions themselves also further the practice of genetics as a science by focusing on genetic testing, manipulation, and ultimately "scientific" predetermination of individual's genomes (Asch & Geller, 1996; Lippman, 1993, 1998; Rothman, 1998). Asch and Geller (1996) state that the rise of "genetics suggests that one's biological relationships are most important. It threatens to persuade many that biology is destiny, difference is immutable and bad, and that our only option in responding is technological" (p. 341). If the reductionism and determinism prevalent in science can lead to ideologies and motivations so politically, socially, culturally, and economically motivated as the current state of genetics, it is evident that scientific claims to objectivity are both false and potentially damaging to people's relationship with themselves and each other.

II. Technology

Regardless of feminist criticism, the perception of scientific research as objective remains solidly entrenched in Western society. Science maintains its position of authority – indeed, it is the only institution imbued with sufficient authority to discover the “facts” of the physical world, and it grants this authority to other disciplines affiliated with scientific research. Technology is one area to which science lends authority, and together, science and technology interact to legitimate new developments in both fields, and in particular, in the development of reproductive and genetic technologies.

Significantly, science and technology share their reductionist tendencies. Just as science frequently removes objects of study from their context in order to study the minutest parts, technology encourages the application of a mechanistic model to people (Rothman, 1989). Rothman argues that Western society is a technocracy that views people as collections of component, mechanical parts. Within this context, people are encouraged to be more efficient, rational, and controlled – more like machines. Similar to reductionism in science, technology fosters the idea that parts can be taken out of their contexts in order to be better controlled (Rothman, 1989).

In addition to the reductionist ideology shared by science and technology, both areas also share important material connections. Scientific research leads to the development and use of new technologies, particularly in the field of human biology and health sciences. Technological developments in turn affect the capabilities of scientific research by enabling new types of research that can only be conducted using biotechnologies. This symbiotic relationship is particularly evident in the case of

reproductive technologies, where *in vitro* fertilization technology grew out of scientific research into animal and human reproduction (Burfoot, 1993; Corea, 1985; Crowe, 1990; Laborie, 2000). As well, more recent scientific research in the fields of embryology and genetics became feasible because IVF technology makes it possible for the earliest stages of reproduction to occur outside of a woman's body. In addition, IVF and its accompanying superovulation drugs allow for the retrieval of high numbers of eggs, increasing the number of unwanted embryos potentially available for scientific research. Like science, technology is also largely considered to be neutral, even though critics argue that it also shapes, and is shaped by, current social contexts.

While science and technology are deeply interconnected, technology is more than just a branch of science (Balsamo, 1999). Rather, Koch & Morgall (1987) argue that technologies are a "complex structure of tools, techniques, organizations and supportive systems" (p. 179). This is a useful and holistic definition of technology that includes the systems that accompany a tool or procedure. Wajcman (1991) provides a similarly straightforward definition of technology as being made up of three components: it is hardware (the material artifacts and tools); it is a form of knowledge, since the hardware is unusable without the knowledge required to build and maintain it; and it is a set of human relations and practices, or "what people do as well as what they know" (pp. 14-15). Significantly, Balsamo (1999) locates technology's origins and effects in the social system, emphasizing a view of technology as "a complex cultural arrangement that is determined by [the] cultural forces that precede it, as it also organizes and reproduces these forces over time" (p. 90). This definition is important for my analysis of reproductive technology, because it emphasizes that the development of a technology is

influenced by social forces, and in turn, will influence social relations, often by reinforcing existing methods of social organization.

Some feminists argue that “technology is a manifestation of cultural values” (Balsamo, 1999, p. 88), and the social imprint of the people who develop technology is evident in the technologies themselves (Koch & Morgall, 1987). However, this viewpoint remains largely ignored by scientists and technologists. This perception has led to the current situation in Western society, where scientists are justifying a great deal of research based on the false perceptions that science is objective and technologies are primarily beneficial, with little attention paid to either the social origins or social repercussions of technologies. One aspect of what critics call “technological determinism” includes the belief that technology is a useful tool (Morgall, 1987, 1993; Rothman, 1989; Wajcman, 1991, 1994). Morgall (1993) argues that the perception of technology as a helpful tool to aid human endeavours is a deeply ingrained falsehood in Western culture.

A number of feminists challenge this determinism, emphasizing that technologies are not necessarily beneficial; rather, they can be created and used for purposes that are neither benign, nor advantageous for all members of society. The goal of many feminist theorists is to determine the purpose served by technologies, and the potential effects that technologies can have on women (Koch & Morgall, 1987; Morgall, 1993; Sherwin, 1992; Rothman, 1989; Wajcman, 1991). To ascertain the possible consequences, technologies need to be placed within their social contexts. Failure to consider the context of technology can lead to the development and legitimization of technologies with potentially damaging applications (Wajcman, 1991). Asch and Geller (1996) provide an

example when they cite the American Office of Technology Assessment as promoting the manipulation of genes for eugenic purposes, and justifying this move on the grounds that it represents “technological *as opposed to social control*” (p. 323. Emphasis mine). By failing to consider the social context in which technology exists, technologists focus exclusively on technology as useful, and negate the significant potential effects of an action such as predetermining the genetic future for generations to come.

In addition to the idea that technology is a beneficial tool, technological determinism also postulates that technology is the primary force for social change (McNeil, 1990; Wajcman, 1991, 1994). By placing technology at the centre of change, technological determinism effectively removes a sense of human agency in controlling the effects of technology. Feminists like McNeil (1990), Rothman (1989), and Wajcman (1991) are critical of the idea that technologies have the power to determine the future quality of people’s lives, proposing instead that women selectively embrace particular technologies in ways that are beneficial to their bodies and lives. Through their critiques of the view that technology has the potential to rule people’s lives either positively or negatively, some feminists are able to consider technology within the broader social context and reclaim a sense of agency in relation to technology’s effects. Wajcman (1991) suggests that women can increase their sense of control over technology by women boosting their level of interaction with technology in order to enable them to be agents in the creation and implementation of new technologies. Importantly, these feminists point out that since technology is a social product that exists within and serves the needs of particular power relations, the social view of technology and the development and implementation of particular technologies will only change as a result

of widespread social change (Rothman, 1989; Wajcman, 1991). Feminists need to ensure that technology is recognized as a political, and social entity, and that the shape of future technologies will change as broader political and social changes take place. In order to politicize technology, many feminists counter the technological determinism which combines the notions that technology is primarily beneficial, and, as a central element in social change, has led to the belief that technology should be embraced as the defining force of contemporary Western society.

Perhaps most important in the interaction of science and technology is the role that scientific versions of nature play in legitimating new technologies. As I discussed in the first chapter, nature is not a given category; rather, nature is a socially constructed, fluid category that changes as the social definitions of nature and its diametric opposite, technology, change. However, nature remains widely perceived as a fixed category, outside of human definitions and appropriations. Within the current technologized social context, the boundary between nature and technology is blurring. Some feminists argue that reproductive technologies, in particular, transgress the nature/technology boundary by imposing technology on the reproductive process which was formerly perceived to be natural (Franklin, 1995; Haraway, 1997; Strathern, 1992b). Technologically assisted reproduction represents technologies as necessary to enable the natural reproductive process, thereby promoting the belief that cooperation between technology and nature is unavoidable (Franklin, 1995). Franklin (1995) argues that the process of legitimizing reproductive technologies has changed the perception of the formerly natural process of reproduction, so that technologies are now believed to be a necessary part of reproduction. This ambivalent position enables technology to both undermine the

givenness of nature – exposing nature as no longer immutable – while simultaneously borrowing its foundational grounding. However, I believe that even within this boundary confusion, nature still retains a higher degree of legitimacy. When nature and technology come together, nature lends its foundational authority to technology. Therefore, as the scientific connections between technology and nature confuse the lines between them, technology is naturalized and gains the legitimacy formerly accorded to nature.

Although nature and technology are being brought together in complex and important ways, technologies such as genetic engineering or IVF are still not perceived to be synonymous with the “natural” processes from which they originate. On the contrary, it is more likely to find technology represented as having the legitimacy of the natural, but simultaneously being better than nature in very important ways (Dumit & Davis-Floyd, 1998; Haraway, 1997; Mentor, 1998; McNeil, 1990; Schmidt & Moore, 1998; Van Dyck, 1995). “Technoscience turns animals and humans into cyborgs, but its discursive practices naturalize these processes, turn them into Nature” (Mentor, 1998, p. 86). Haraway (1997) finds evidence of the naturalization of technology in her analysis of a high school biology textbook on genetic technology in which a lesson is titled “Natural Genetic Engineering,” and a plant geneticist describes her job as enabling her to transform “a plant to make it better than it already is” (p. 106). Similarly, in Van Dyck’s (1995) discourse analysis of an article in the *New England Journal of Medicine* that praises reproductive technologies such as IVF, the author finds that technologies were simultaneously compared to nature and represented as better than nature. In this article, Van Dyck (1995) finds that the author claims medical technologies to be more efficient and better than natural processes. Perhaps most telling is Schmidt and Moore’s (1998)

research into sperm banks' representation of their "technosemen" as being superior to non-technologically enhanced, "natural" semen. Their study found that sperm banks boast about their "technosemen," the superiority of which is based largely on the technological procedures and chemical additives used to purify and enhance their commercialized semen (Schmidt & Moore, 1998). Thus, biotechnology is perceived as both the implosion of nature and technology and the improvement of the processes of nature. In this way, technology is legitimized by being naturalized, while also making use of the edicts of technological determinism to encourage the notion that technology makes nature better.

III. Medicine

Medicine, as it is currently practiced in Western culture, shares a number of parallels with science and technology. It is largely individualistic, reductionist, and focused on genetics. Similarly to science, the medical system carries a great deal of social authority (Morgan, 1998), especially with regard to how people view their bodies and identities. At the same time, medical practitioners are considered to practice a form of science and are thus perceived to work in an objective manner. Mitchinson (1998) dispels the myth of objectivity and exemplifies the interconnectedness of society with science and medicine by arguing that historically, "the culture influenced physicians to see women in a particular way and physicians provided the culture with the scientific legitimacy for doing so" (p. 142). She further identifies the interrelation of technology and medicine by pointing out that, historically, technology represented the science of medicine, and the use of medical technologies served to legitimize the work of physicians

(Mitchinson, 1998). Analysis of the practice of medicine is so important because it is the arena in which science and biotechnology come into the most intimate contact with people. So while medicine shares much of the underlying ideologies of science and technology, it presents unique problems for women, because the consequences of individualism and reductionism – the dominant patterns of social interaction, authority, and power relations – are played out differently in the field of medicine.

Since some of the perceived objectivity of medicine grows out of the objectivity thought to exist within the practice of science, then from a feminist critical perspective, objectivity in medicine remains as problematic and false as it is within science. However, it takes place within a different (though related) sphere, so the falsity of objectivity in medical care emerges in unique forms. Individualism and reductionism work in conjunction to focus on the individual so thoroughly as to ignore the social, political, and economic contexts of the individual. The effect of increases in the degree of individualism and reductionism is evident in the change in dominant models of medicine, from the germ model to the genetic model (Condit, 2000). The formerly dominant germ model gave more credence to the effects of the social and physical environments on health and illness, in that it viewed illness as being caused by foreign organisms invading human bodies (Condit, 2000). In stark contrast, the genetic model is based on the notion that illness is caused by innate flaws in an individual's genetic constitution (Asch and Geller, 1996; Condit, 2000; Hubbard & Wald, 1993; Lippman, 1993, 1998; Rothman, 1998). The prevalence of the genetic over the germ model of medicine is evident in the increasing dominance of predictive over preventative medicine (Lippman, 1993, 1998). The predictive mode of medical care uses genetics to attempt to

predict individual's susceptibilities to particular genetic-related illnesses. Thus, instead of focusing on social solutions – which could range from reducing smoking to reducing poverty – that could help to prevent illness in large groups of people, the predictive model uses new, largely experimental tests to determine whether individuals' genetic constitution could increase their chance of developing lung cancer or lead poisoning, for example. Predictive, genetic-based medical care focuses on individuals in a reductionist way that does not consider the effects of the social and physical environment that large groups of people share, in favour of focusing on the susceptibilities of an individual patient.

The current dominant medical model is individualistic to the extent that it allows for the responsibility and blame for illness to be placed upon individuals, rather than promoting a view of health and illness as social responsibilities (Asch & Geller, 1996; Condit, 2000; Hubbard & Wald, 1993; Lippman, 1993, 1998; Lock, 1998; Rothman, 1998). Hubbard and Wald, in particular, (1993) state that:

Medical, and especially genetic, predictions do not increase individual control. Such predictions place the source of all our health conditions in our biology and give physicians and scientists control over them. By erasing the social context, genetic predictions and labels individualize our problems, blame the victim ('If you get sick, it's because you have bad genes'), and are authoritarian ('You should have had your genes tested and done what the doctor said!') (p. 74).

The victim-blaming that occurs within genetic predictive medicine has proceeded far enough to raise serious questions around its potential for employers and health insurance companies to discriminate against people based on their genetic susceptibilities, so that certain susceptibilities could prevent individuals from working in toxic environments, thus allowing the company to avoid cleaning up toxic workplaces (Hubbard & Wald, 1993). An individualistic medical system that ignores the effect of the environment on

illness ignores issues that directly affect the health and wellness of numerous people, instead promoting the viewpoint that sick individuals are responsible for their own illness.

Significantly, the idea of using genetics to predict individual's health and illness serves the purposes of politicians who focus on cutting health care costs (Lippman, 1998; Lock, 1998). Lock (1998) cites a past president of the Rockefeller Foundation in the U.S., who stated that “ ‘one man's or woman's freedom in health is now another man's [*sic*] shackle in taxes and insurance premiums’ ” (p. 60); this mentality promotes the notion that the health care of each person should be an individual responsibility, and any collective responsibility is a financial burden. By decontextualizing individuals and using genetic predictions, genetic/predictive medical care shifts responsibility for illness onto the individual, thus moving health outside of collective interests or responsibility, and providing justification for a lack of health care spending (Lock, 1998). I agree that this purely political desire fits easily within the dominant model of medicine, given that the rise of the notion that an individual is to blame for his/her illness correlates to a recent political shift in ideology and economics from the former welfare state to the current conservative, capitalist, free-market ideology of health care that is prevalent in Canada (Lippman, 1998).

Issues around medical authority are also significant because authority justifies a substantial amount of medical practice. Morgan (1998) argues that medical authority is based on the belief that medical knowledge is the most relevant, evidence-based, reasonable system of knowledge with regard to medical care. Thus, medicine is imbued with the authority to draw seemingly given boundaries that are actually ideological, such

as the notion of what a “normal woman” is, and what remedies should be prescribed to “remedy” women who otherwise fail to fit into this category (Koch & Morgall, 1987; Morgall, 1993). Medical authority also tends to obscure the inequities of relationships between physicians and patients, masking the problematic way that the medical system constructs choice for women (Morgan, 1998; Koch & Morgall, 1987; Morgall, 1993; Sherwin, 1998). When medicine is given the authority to focus on the individual outside of a broader context, the medical system is able to downplay complex issues regarding women patients’ choices. Rothman (1998) and Sherwin (1998) are critical of medicine’s promotion of the notion of individual free choice without consideration of the patient’s social context, because this allows issues of choice to be framed in a way that ignores the social realities around inequity. Rothman (1998) states that contrary to popular opinion, “individual choice doesn’t stop social engineering. It’s a mechanism for achieving it” (p. 249) for the precise reason that simplistic notions of individual choice gloss over the realities of how social forces can shape patients’ decisions. Once the effects of social, political, and economic forces on women’s choices are considered, then it must be acknowledged that members of oppressed groups will be affected differently by everything from the policy decisions made by medical institutions and governments (Sherwin, 1998) to patients’ personal interactions with medical practitioners (Asch & Geller, 1996; Lippman, 1993). Sherwin (1998) contends that when the illusion of choice is used to hide inequities between the doctor and patient, as well as the broader social inequities faced by the patient, women’s behaviour can be controlled in subtle and dangerous ways. Generally, an individualistic medical system tends to ignore the role of medical authority and the inequities faced by women patients.

One example of the problematic way in which the illusion of choice is played out concerns decisions regarding prenatal genetic testing. Lippman (1993) provides interview research that shows that women who reject genetic testing procedures are more intensely questioned about their motives than women who quickly accept suggested tests or procedures. She postulates that genetic counsellors view women's rejection or reluctance toward testing as an obstacle to making a decision rather than as a valid decision in and of itself. Similarly, decisions related to infertility treatments raise questions about subtle forms of coercion. Considering the profound effect that infertility can have on women who want children in the context of this pronatalist culture, many women feel as though they have no choice but to use reproductive technologies (Barnby, 1995; Bartholet, 1994; Dumit & Davis-Floyd, 1998; Franklin, 1997; Michie & Cahn, 1997; Rothman, 1989; Sherwin, 1998; Stens, 1989; Stuart, 1989; Winkler, 1989). As doctors who perform ARTs live within this same pronatalist culture, and benefit personally from the use of reproductive technologies, it is unlikely that many physicians will acknowledge the social forces on women's decisions or encourage women to look at the context of their choice (Franklin, 1990). While these decisions may be perceived as being made freely, the broader cultural, institutional context and the power relations that exist in medical care must be acknowledged as potentially impacting on women's choices.

The problems and complexities around women's choices regarding medical care are important to consider, but many feminists also stress that women's interactions with medicine are neither simplistic, nor wholly negative. Medical authority, the social privileging of medical knowledge, and even doctors themselves have historically, and

even now, continue to place women in an inequitable relationship with the medical system and its practitioners (Mitchinson, 1998; Sherwin, 1998). However, this inequality does not mean that women are incapable of making choices. Mitchinson (1998) examines the complexity of issues of agency for women in relation to their medical care between 1850-1950. She emphasizes that both women and their physicians were heterogeneous groups, and that women did exercise a limited form of agency in determining their medical care. This trend continues in contemporary society, where women's sense of agency in their health care is complex. For example, women in both the past and the present frequently internalize a belief in the benefits of increased medicalization, and lobby for increased access to more medical services (Mitchinson, 1998; Morgan, 1998). For some women, increased medicalization can result in an increased sense of power over their lives (Morgan, 1998). This is frequently the case in terms of access to new reproductive technologies. For infertile women who, before the availability of reproductive technologies, had no medical recourse after a diagnosis of infertility, obtaining access to these technologies is often positive. However, increased levels of medicalization may also be difficult, because the normalization of reproductive technologies makes it difficult for women who choose to not use ARTs to have their decision validated. Sherwin (1998) asserts that the complexities of social and medical forces on women's choices necessitates a consideration of the broader social context and the role that forces of oppression may exert in shaping women's decisions about their medical care. She distinguishes between agency and autonomy, wherein agency refers to the shallow exercise of informed choice, while autonomy goes deeper to consider the impact of women's broader context on their choices. For members of oppressed groups,

agency may mean that an individual is merely complying with the forces of oppression, thereby disallowing her from making choices that are genuinely autonomous (Sherwin, 1998). Thus, in order to determine the autonomy of choices, feminists need to recognize the necessity of women making choices on an individual level, while simultaneously considering how the forces of oppression influence the choices available to an individual (Sherwin, 1998).

The impact of an unequal society on members of oppressed groups underlies many of the feminist critiques of science, technology, and medical care. Many feminists work to counter the current dominant forces that shape these important areas and remove individual cases from their broader context. The widespread notion that people and problems can be reduced to their individual parts effectively serves the interests of promoting scientific and medical authority, and technological determinism. In order to expose the differential effects of society on women and other oppressed groups, feminists must work to consider the social, political, and economic contexts, and show how the obliteration of context is complicit in the proliferation of oppressive forces. Reproductive technologies are an important domain in which science, technology, and medicine interconnect with one another, combining to shape the technologies, practices, and underlying ideologies involved in technologically assisted reproduction in general, and IVF in particular.

IV. *In vitro* fertilization (IVF)

IVF was initially developed for the purposes of breeding livestock, in an effort to extend the reproductive usefulness of economically valuable animals by combining their

genes with those of other valuable animals as often as possible (Armstrong et al., 1992; Burfoot, 1993; Corea, 1985; Farquhar, 1996). The goal of IVF development in animal husbandry was to create highly profitable offspring from parents that had the most desirable characteristics. The prime motivation was making money, in a context that garnered little respect for the cows involved (Corea, 1985), but focussed mostly on the numbers – numbers of pregnancies, numbers of offspring, and corresponding numbers of the profits. Embryo transfer in animals itself was preceded by artificial insemination in livestock. Burfoot (1993) argues that, ideologically, the shift to embryo transfer was not a radical change, as it merely allowed for the transfer of desired genetic traits to come from females as well as males. By creating an embryo using profitable genetic traits from both the maternal and paternal gene pools, and by using cows with less desirable genetic backgrounds as gestational mothers, scientists were able to get more genetic offspring from cows with desired traits (Armstrong et al., 1992). The origins of IVF, then, are nearly unrecognizable from the current benevolent representations of its human applications.

The development of IVF in humans utilized the knowledge gained from animal husbandry, but it also used earlier knowledge about humans to shape further experiments. Corea (1985) states that in 1927, scientists discovered that hormones produced by the pituitary gland affected the ovaries, and within that same year, they were testing mice with experimental drugs that aimed to promote the ovulation of a large number of eggs. Later in the century, the experiments carried out by Drs. Edwards and Steptoe led directly to the first birth of a child who was conceived using IVF. In a further connection between animal breeding and IVF in humans, Edwards was a zoologist who carried out

research on the development of mice embryos before turning his attention to humans (Burfoot, 1993; Crowe, 1990). He began working with Steptoe who had developed the laparoscopic procedure that allowed them access to women's ovaries for the purpose of removing eggs. This unprecedented access then enabled further experimentation on fertilizing eggs outside of women's bodies. Crowe (1990) points out that the women who provided eggs for this experimentation were routinely rendered invisible by Edwards and Steptoe. Edwards repeatedly referred to the "human egg," thereby ignoring which humans the eggs came from, and concealing women's contribution to their research (Crowe, 1990). During this time, neither the women nor the doctors knew what the side effects of superovulatory drugs would be, and the women were only used as sources of "human eggs." Since Steptoe and Edwards had not yet reached the stage where embryos would be transferred to the uterus, these women had no chance of becoming pregnant. Crowe (1990) suggests that the purpose of using drugs to promote superovulation was to ensure that the researchers would have access to a vast supply of eggs for future experimentation. When Edwards and Steptoe finally used IVF to create a pregnancy that resulted in a healthy baby in 1978, the IVF procedure for humans was born.

The entire IVF procedure is actually composed of numerous processes. To begin with, in the majority of IVF procedures, the woman's ovulatory cycle is controlled with medications. Some of the drugs involved are injected by the woman or her partner (so that they do not need to go to the clinic for every injection), but often at least one of the drugs requires an injection by a medical professional (Reproductive Endocrinology Centre). The patient's blood must be tested every day leading up to ovulation in order to track the effectiveness of hormone treatments and predict when she is close to ovulating.

One drug is used to shut down the normal hormonal action of the woman's pituitary gland, so that the subsequent drugs are able to take control over the process of egg maturation. These drugs cause superovulation – the production of numerous eggs.¹⁷

Many feminists have been critical of the use of drugs to promote ovulation, especially considering that these drugs are used in nearly all cases of IVF, regardless of whether the woman's infertility is related to her ovulation. The issue of physicians taking control over a woman's cycle is the source of most feminist questioning of ovulation-inducing drugs. Corea (in Armstrong et al., 1992) states that doctors themselves describe these drugs as a means to sever the brain's connection to the ovaries. This was clearly perceived as unproblematic by Edwards and Steptoe, who referred to women's cycles as being "taken over" with drugs to encourage ovulation, and then requiring "support," in the form of additional drugs needed to maintain the uterine lining (Crowe, 1990). The ease with which doctors can represent women's cycles as in need of assistance, even in cases of infertility where ovulation is not an issue, is problematic from a feminist perspective. A scene in the film *On the Eighth Day* (Armstrong et al., 1992) shows a group of fertility doctors at a surrogacy clinic discussing their concern over the fact that they have retrieved eighteen eggs from an egg donor. However, their concern over this high number does not relate to any potential health problems for the woman. Instead, they are concerned that because extracting such a high number of eggs is "so unnatural," it could be an indication that the "quality" of the eggs has suffered (Armstrong et al., 1992). It is disconcerting to see them express concern for the quality (and subsequent marketability) of the woman's eggs without considering the health of the woman. If

removing eighteen eggs is so “unnatural” as to pose a risk to the eggs, is it not also “unnatural” enough to also put the woman at risk?

Health risks for the women involved is another reason for feminist opposition to the use of ovulatory drugs. Drugs that control a woman’s ovulatory cycle carry the risk of kidney damage (Lasker & Borg, 1987). As well, these drugs can cause ovarian hyperstimulation syndrome, which results in excessively large ovarian follicles or cysts in 2-4% of cases (Reproductive Endocrinology Centre; Dr. Marsden Wagner in Armstrong et al., 1992). This will require the stoppage of IVF, and further treatments to alleviate the pain and cramping may be required; in severe cases, it may require hospitalization, and can (and has) caused the death of women undergoing IVF (Corea, 1985; Lasker & Borg, 1987; Shanner, 2000). These are risks which are acknowledged, but there are other possible risks that sit uncomfortably in the realm of the unknown. Farquhar (1996) suggests that ovarian hyperstimulation drugs may be a factor in IVF’s low success rates because they interfere with the implantation of the embryo in a woman’s uterus. As well, there is a concern that superovulatory drugs may cause ovarian cancer, but scientists have not yet agreed on the risks and the issue remains highly controversial in fertility medicine (Laborie, 2000). Further, there is a question of whether women with ovulation problems who use IVF may pass on their infertility to their daughters. Laborie (2000) stresses that the answer to this question is not only unknown, but has not even been researched by doctors or scientists (Laborie, 2000). While these issues range in severity, many feminists argue that all of these questions need to be fully researched so that women who choose to undergo IVF and use ovulatory drugs are aware of all potential risks.

The one exception to controlling a woman's ovulation with medications is the use of "natural" IVF. One Canadian IVF clinic, IVF Canada in the Toronto area, lists "Natural IVF Treatment Cycle" on their list of services. They charge the same fee for this treatment as for "Basic IVF," except that a "natural" cycle does not use drugs to encourage superovulation in the woman. The clinic estimates drug costs as ranging from \$800 - \$3000 per treatment cycle, so for women whose infertility is not related to ovulation, or for women whose husbands have a fertility impairment, a "natural" cycle may be a more affordable alternative. This treatment could also be safer for women because they do not have to take on the risks associated with the drugs. While "natural" IVF may be an option in a limited number of circumstances, it may not necessarily be a more positive experience than basic, drug-enhanced IVF. In her observation of clinics, Cussins (1998) found that, for patients, "natural" IVF can be associated with increased feelings of pressure, personal responsibility, and guilt for women and their partners who have tried it unsuccessfully.

One way in which physicians justify the use of ovulatory drugs is that the drugs allow them to more accurately predict when the woman's eggs are mature, but ovulation has not yet taken place. The timing of the egg retrieval process is crucial because if ovulation occurs prior to egg retrieval, there is no way of retrieving the eggs and the entire IVF attempt must be abandoned. In order to hone their prediction, physicians use daily blood tests and vaginal ultrasound to determine when the egg retrieval should be done. Birke (1999) argues that visualization technologies such as ultrasounds reflect the power relations that arise when physicians are the only ones who possess the medical knowledge necessary to interpret what they see on an ultrasound. Ultrasound

technologies serve to maintain the unequal relationship between medical professions and women patients. It is significant that the expert knowledge which shapes this encounter grows out of the same scientific, technological, medical context that encourages a reductionist, mechanistic view of the human body and which increasingly focuses on gametes mostly in their connection to genetics. This is particularly evident in relation to vaginal ultrasound, which is performed for the purpose of examining the woman's eggs.

In the egg retrieval procedure, suction is used to remove the fluid containing the mature eggs from the woman's ovary. The procedure carries a risk of the woman's bowel or bladder being perforated (Armstrong et al., 1992). Because of the superovulatory drugs, most women will have a number of eggs extracted during this process. After the egg retrieval, the woman's eggs will be placed with her partner's sperm.¹⁸ Technicians watch the eggs for signs of fertilization and if fertilization occurs, they monitor the embryos for signs of proper development. If the fertilization attempt produces embryos that appear to be healthy, then an embryo transfer will be performed two days after the egg retrieval (Reproductive Endocrinology Centre).

The embryo transfer process involves the insertion of a speculum into the woman's vagina, and then a catheter containing the fertilized eggs is inserted into the woman's uterus.¹⁹ Once the couple and their doctors have determined how many embryos will be transferred into the woman's uterus, the embryos are gently pushed from the catheter into the uterus and the procedure is complete. The embryo transfer is generally painless and does not require medication. After the embryo transfer procedure, the woman and her partner wait to see if she gets a menstrual period. If she does not menstruate for eighteen days following the transfer, then a pregnancy test will be

performed (Reproductive Endocrinology Centre). In North America, approximately 70%-80% of women under 40 who go through the entire IVF procedure will not become pregnant²⁰ (Center for Disease Control and Prevention; Reproductive Endocrinology Centre; The Fertility Centre).

IVF's genetic construction of women and the family

The IVF procedure is based on scientific research and practiced as part of medical care, and as such, exists within the reductionist, individualistic, geneticized context of science, technology, and medicine. IVF is also inextricably linked to the individualistic, gene-focused construction of the nuclear family. The main goal of IVF is “to join the egg of a woman to the sperm of her husband so that they could produce a biological child together” (Lasker & Borg, 1987, p. 52). Thus, IVF serves to support the individualistic, genetic-based family values (Sherwin, 1992) that have also shaped the nuclear family into its current form (Thomasson, 1995). The sense of belonging and responsibility that helps to define who is a member in nuclear families in Western culture (Thomasson, 1995) is similar to the individualistic notions that currently characterize the privileging of genetics. Medicine’s focus on genes includes a sense of responsibility and personal blame for genetic-based illnesses (Asch & Geller, 1996; Condit, 2000; Hubbard & Wald, 1993; Lippman, 1993, 1998; Lock, 1998; Rothman, 1998). This focus mirrors the sense of exclusive parental responsibility seen in the traditional nuclear family that privileges genetic relationships between parents and children (Thomasson, 1995). As well, the idea that genes are a central, defining aspect of character and identity (Condit, 2000; Rothman, 1998) relates to the exclusive sense of belonging that is found within the nuclear family

(Thomasson, 1995).

Within the context of IVF, where this procedure is most often used to construct nuclear families, it is important to recognize that the manipulation of gametes is being viewed ever increasingly as being synonymous with the manipulation of genetic information (Schmidt & Moore, 1998). There has been a corresponding shift in emphasis from conception to a focus on the production of gametes as the priority in the new narrative of reproduction (Franklin, 1995). This change raises questions regarding whose gametes/genes are being manipulated for what purpose. Within a geneticized notion of science, medicine, and identity, IVF is largely being used to manipulate genes for the purpose of assisting individual nuclear families, thus further reinforcing the social privileging of the nuclear family as an institution.

Furthermore, the creation of the nuclear family through IVF is available only to infertile couples who are already in privileged social positions. As I discussed in the second chapter, gatekeeping in IVF clinics serves to limit access only to relatively wealthy, often white, heterosexual, married couples. Therefore, while the normative allure of having children affects most infertile people, the option to use IVF to create a nuclear family is available only to some. Sexual orientation is a criterion commonly used in gatekeeping practices, so that gays and lesbians are prevented from using IVF. IVF's reinforcement of the social norm of biological parenthood, within the context of the nuclear family, serves to reinforce heterosexuality as necessary for socially sanctioned parenthood (Crowe, 1990; Cussins, 1998). Considering the lack of access faced by gays and lesbians, and the fact that single women are also frequently prevented from accessing IVF (Strathern, 1992b), it seems that IVF is used to create genetically related children for

men. Sherwin (1992) states that “IVF may be accurately described as a technique that is available to men who are judged worthy, even though it is carried out on the bodies of their wives” (p. 127). In my opinion, such controls exemplify the subversive potential of ARTs to disrupt patriarchal kinship relations. I think that official control is exercised by clinics – which themselves sit in privileged positions in the ruling relations of society – in order to prevent the formation of families that do not conform to the traditional nuclear model. Controls such as these are generally only necessary when elements of resistance – in the form of non-nuclear family models – are in existence and are gaining in strength to an extent that threatens the dominance of the traditional family. IVF technology has been created and used in ways that encourage and reinforce the social preference for the formation of the male-centred, genetically related nuclear family, while simultaneously prohibiting access to many groups of infertile people who are affected by the normative privileging of the nuclear family.

For women, the centrality of the nuclear family holds specific ideas about their role. Crowe (1990) states that the IVF procedure is based on the assumption that women want to be mothers, wherein motherhood assumes the existence of a biological relationship. Thus, IVF is based on the notion that becoming a mother is central to a woman’s identity as an adult. The previous chapter provided evidence that infertile women do, indeed, experience their infertility as a reflection of their failure to fulfill their social roles as women, and their failure to conform to the social norms of a feminine identity. IVF is based on this notion, and also reinforces it in the larger social view of women’s fertility. Crowe (1990) states that IVF enhances “the concept of motherhood as the biological production of a baby” (p. 38). Similarly, Sherwin (1992) points out that,

because IVF demonstrates how far women will go to become mothers through the biological process, use of this technology legitimizes the notion that motherhood is a woman's biological destiny. IVF asks women to disrupt their lives in drastic ways for one month per attempt – taking powerful drugs, learning to give themselves injections, undergoing daily blood tests and procedures that include fairly significant physical risks – in order to fulfill their socially prescribed role as biological and social mothers.

IVF involves the external manipulation of eggs and sperm, so that both men and women participate in the process, but the procedure is practiced in a way that loses sight of the fact that women and men's participation are not equal. The focus on genetics as the narrative of creating life is so strong that "women's bodies are no longer that which gives life, but 'life' is seen increasingly as belonging to genes" (Birke, 1999, p. 168). This mentality takes the ability to "give life" away from women, and places it in the hands of scientists and physicians (Birke, 1999). Farquhar (1996) argues that through IVF, women's reproductive capacity is reduced to a level equivalent to men's because women are now reduced to gamete donors. Indeed, this change has gone so far that IVF actually reverses the physiological sex differences in reproduction; the process of unassisted reproduction has been altered to such an extent that IVF clinics aim to use numerous eggs and only a few sperm, while natural conception uses one egg and millions of sperm (Laborie, 2000). In addition, Farquhar (1996) claims that reducing women's role in procreation to that of men's is not a negative phenomenon for women, and that feminists who criticize IVF for this reason do so out of a fear that women will become obsolete in reproduction. I completely disagree with Farquhar's suggestion that negating women's role in reproduction is positive and that feminists are not justified in their

criticism of these practices. What makes this representational symmetry negative for women is that it masks the fact that women are the ones who assume physical risks, undergo surgery, and take powerful drugs.

The presumption that men and women are equal in IVF is neither true nor benign. This notion is based on the privileging of a male viewpoint of the world and ignores the physical and social work that women do towards reproduction. Physiological differences still exist between men and women with regards to reproduction, and these differences contribute to the differing social experiences for women and men (Birke, 1999; Shanner, 2000). These divergent realities lead to experiential differences in assisted and unassisted reproduction that are extremely important to recognize. One way in which IVF clinics reinforce a false notion of equality is by routinely referring to “the couple” as undergoing treatment, when in fact it is only the woman whose body is being medicalized (Shanner, 2000). Shanner (2000) states that linguistically constructing women and men as equal participants in IVF “masks the fact that couples do not receive hormone injections, laparoscopies, or surgery; individuals do. The terminology of ‘couples’ conveniently allows women – and the risks that they disproportionately shoulder in new reproductive technologies – to disappear” (p. 144). This false sense of male/female symmetry in IVF is significant in that women’s bodies, risks, experiences, and contributions are rendered invisible, and in that it justifies actions that further ignore the woman in search of the goal of getting “the couple” pregnant.

By rendering women invisible, IVF legitimizes other technologies, such as ICSI (intracytoplasmic sperm injection), which work on and through fertile women whose male partners are infertile. During the earlier stages of IVF, doctors would use IVF only

in cases where the woman was infertile, claiming that it would be unethical to use the procedure on healthy women with infertile husbands for whom they recommended donor insemination (Andrews, 1999). This idea gradually eroded among medical professionals and finally disappeared completely with the 1993 development of ICSI (Andrews, 1999) – a technology that attempts to enable many infertile men to have genetically related children (Laborie, 2000). ICSI is a process that necessitates the laboratory manipulation of sperm and eggs, so it is carried out in addition to IVF (Laborie, 2000), and therefore, requires the medicalization of fertile women. The ICSI procedure itself takes place after the woman has undergone the egg retrieval process, when, instead of putting the sperm together with the eggs and allowing fertilization to take place, doctors inject one sperm directly into the egg. Andrews (1999) describes ICSI as “sex under the microscope” (p. 210). ICSI’s entry onto the ART scene was not without controversy, as numerous reproductive specialists raised issues of grave concern around the use of ICSI. Laborie (2000) documents many of these concerns, and criticizes the fact that medical practitioners failed to raise many of the same issues in relation to IVF. Importantly, Laborie refers to the different receptions accorded to IVF and ICSI as another case in which the symmetry of men and women in fertility medicine is proven false:

When it is a question of male gametes, one immediately emphasizes the traumatic and possibly dangerous character of the surgical puncturing procedures, whereas, when dealing with the puncturing of oocytes, one does not stop emphasizing to which point the procedures are easy, well mastered, and perfectly innocuous” (Laborie, 2000, p. 294).

Notably absent among the numerous critiques of ICSI that Laborie provides is the fact that ICSI necessitates the administration of drugs, medical tests, procedures, and surgery on women who are healthy and fertile. Thus, the women disappear as doctors and

scientists work on bypassing male infertility by going through the bodies of healthy women.

The disappearance of women is a continuing trend; according to numerous reports, a few of the reproductive technologies that are currently in development depend entirely upon conceptualizing of eggs in a way that conceals women's contribution. One team of researchers is reportedly experimenting with mice to develop a way to fertilize eggs using a man's genetic material instead of sperm (Henderson, July 11, 2001). Other researchers are working on a technique that would take a woman's egg, remove her genetic material, and then implant the genetic material of another woman, so that women who do not ovulate, or whose eggs are damaged, would be able to have genetically related children (Reuters, April 29, 2000).²¹ A similar technique under development aims to remove a woman's genetic material from her egg and replace it with the genetic material of a man, then to fertilize the egg with another man's sperm (Henderson, September 25, 2000; MacKeller, 2001). This technique is being framed as an equity issue for gay men, while ignoring the fact that women's bodies must be medicalized to retrieve the eggs necessary for this technique and to gestate any resulting embryo. One newspaper report states: "Male homosexual couples could conceive children without a mother..." (Henderson, September 25, 2000), which raises the question of what the woman who provided the egg should be called, if her role is recognized at all. The scientist currently developing this technique actually refers to it as the creation of "male-eggs" (MacKeller, 2001), thereby completely obscuring the fact that, regardless of what technique they use to manipulate them, all eggs come from women's bodies. By ignoring the physical and emotional risks that women take to provide eggs for experimental

procedures, doctors and scientists are mostly able to avoid the ethical considerations involved in using women's bodies as a source of eggs for experimentation.

IVF's fragmentation of women and reproductive processes

Although the goal of IVF is to get a woman pregnant using her husband's sperm (Lasker & Borg, 1987), the term "*in vitro* fertilization" does not refer to pregnancy, or even the implantation of the embryo. Instead, the name refers only to the "fertilization" of the egg, which is a small part of the procedure involved. *In vitro* fertilization literally means that an egg is fertilized "in glass" – generally in a petri dish in a laboratory. Mentor (1998) argues that the rhetoric of glass and visibility is common in the promotion of reproductive technologies, in that IVF is represented as being a transparent process. This representation is false, though, as in reality the same rhetoric that alludes to visibility also makes use of highly medicalized terms and concepts that render it incomprehensible to most people (Mentor, 1998). The discourse of IVF is further alienating for women undergoing the procedure because the entire IVF process is named for a part of the procedure at which neither member of the infertile couple is present. Thus, even the name obscures the role of the patient and her partner, emphasizing instead the role fulfilled by professionals in the creation of a fertilized ovum. In addition, the terminology emphasizes that the meeting of egg and sperm, resulting in a merging of the gametes, is the central process in assisted reproduction, even though, as couples in fertility treatment centres are regularly reminded, reproduction is an extremely complex process dependent on a large number of factors.

An emphasis on fertilization as the central event within procreation mirrors the social emphasis on the genetic tie between parents and potential child, and thus ideologically highlights the man's role in the process. IVF fragments women's procreative process, reflecting a social context that recognizes men's alienation from reproduction and yet fails to understand how women experience procreation. In its narrow focus on fertilization, IVF breaks reproduction into parts that allow the man's contribution of sperm to be central. Since fertilization is the man's only physiological part in reproduction, and there is a widespread misconception among scientists and the public that sperm plays the active role in the fertilization process (Martin, 1991), it is clear that an emphasis on fertilization reflects a phallocentric line of reasoning. Focussing on creating an embryo takes the emphasis off of creating a pregnancy, thereby negating what may be an extremely important aspect of the process for women.

Rothman (1989) argues that the medical profession has never viewed fetuses as part of their mother's bodies, and this decontextualized view of a woman and a fetus has served to fragment the relationship of pregnancy. As medicine became the authoritative voice regarding pregnancy, women's experiential knowledge was devalued to the point where women stopped trusting their bodies (Rothman, 1989). This fragmentation of the pregnancy experience has profoundly shaped the way women experience pregnancy, and reproductive technologies go even further towards separating women from fetuses and babies. Often, the interests of women and their fetus(es) or even potential fetus(es) are portrayed as being in opposition to each other.²² Stanworth (1987) states that "babies legitimate the use of new conceptive technologies in very powerful ways, often to the exclusion of questions about the impact of these technologies on women" (p. 27).

This is not to state that feminists should reinforce a naturalized concept of women and pregnancy that holds to a naïve idealized version of maternity which IVF disrupts. Rather, I am arguing that through its focus on fertilization, IVF further separates and compartmentalizes the embryo/fetus/baby from the woman's experience of pregnancy, in ways that women who do not use technologies to conceive may not experience. Therefore, IVF fragments the experience of pregnancy from the socially normative notions of pregnancy, and from the woman's expectation of her pregnancy experience; it does so in part by emphasizing the laboratory achievement of fertilization, rather than focussing on the woman's experience of pregnancy. Alternatively, a woman-centred definition might emphasize the implantation of the embryo(s) into the uterus and the establishment of a pregnancy as the area around which reproduction should focus. This definition would also be more realistic, since it is more common for IVF patients to have fertilized embryos that fail to implant and develop into a pregnancy, than it is to have a pregnancy established. The IVF program at the IWK Grace Hospital in Halifax estimates their pregnancy rate²³ to be approximately 20% for every completed treatment cycle (Halifax Reproductive Endocrine Centre). Given that at least two embryos are transferred at a time and that 80% of transfers do not result in pregnancy, it is clear that the vast majority of embryos do not implant in the woman to create a pregnancy.

IVF can also contribute to an experience of reproduction that fragments women's experiences from the socially normative view of procreation because IVF separates women's reproductive capacity from the rest of their bodies. In the film *On the Eighth Day*, former IVF patient Jan Rehner describes undergoing IVF as an experience that was based on an understanding of her infertility as a failure to do one thing – get pregnant.

This led her to view herself in a fragmented way that emphasized her unsuccessful reproductive capacity as the most important aspect of herself (Armstrong et al., 1992). To some extent, the entire IVF procedure encourages this disconnected notion of women because the process breaks women's physical reproductive process into distinct parts. Again, this fragmentation reflects the individualistic, reductionist view of humans that comes out of the broader scientific, technologized, medicalized context in which IVF exists. IVF separates reproduction into a series of discrete steps (Armstrong et al., 1992), in which each stage focuses distinctly on one part of physical reproduction. The current practice of IVF does not regard reproduction as a holistic experience, and it fails to treat women themselves in a holistic way.

IVF ignores the social and emotional experiences associated with infertility and treatments in favour of a focus on women's physical reproductive potential, largely because the procedure is located within the reductionist medical system. This framework ignores the context of infertility and attempts to address only the medical issue. The process does not help women to approach their infertility treatment in such a way as to reflect their experience of infertility on social, emotional, financial, and medical levels. The fragmentation of different stages in the reproductive process also reflects the separation of fields in medical science – fertility medicine itself includes embryology, gynecology, urology, and, increasingly, genetics – so that the IVF process, which starts by separating women's reproductive potential from their other physical and emotional considerations, is itself further fragmented into separate specialties. The emotional effects of IVF are often ignored by medical professionals; this tendency is evident in the statement of a director of a fertility clinic: "If I think too much about every patient's pain

and sacrifices, I wouldn't be able to focus on developing new procedures that may help them. If I spend more time consoling them and talking to them, there will be no time for the next person. I know they're angry and desperate, but I just can't always deal with it" (quoted in Lasker & Borg, 1987, p. 122). Essentially, this doctor is claiming that a focus on the science is necessarily placed ahead of a focus on the patient. This mentality is not unique to fertility medicine, but when it occurs within this context, the attitude that science should take precedence over patients does have unique social roots and repercussions for women undergoing IVF.

Given that IVF is itself based on the fragmentation of the reproductive process, some degree of fragmentation for the patients may be unavoidable. However, clinics could take measures to lessen the effects of this fragmentation of the self by treating a woman as a whole person instead of just a pair of ovaries and a uterus. One woman who was interviewed by Lasker and Borg (1987) describes the experience she had during her embryo transfer procedure: "When they put them [the embryos] in with the fluid, I was scared to move. I had to stay on my hands and knees with my rear end elevated for the transfer – all of this with eight people looking at me. What a humiliating position. But I guess I'm beyond embarrassment at this point" (p. 57). This woman – who was obviously not beyond embarrassment, and for whom this was evidently a very negative experience – may have been relieved of some of her humiliation if the clinic had taken some minor measures. Perhaps the position with her rear end elevated was not entirely medically necessary, and to respect her privacy, perhaps it was not necessary to have eight people in the room (especially considering that the embryo transfer is not a surgical procedure). Given that Lasker and Borg's study was published in 1987, it is possible that

practices such as this are less common; however, evidence does not suggest that fertility clinics have completely overcome fragmentary practices. Overall, it could be helpful to all patients if clinics took the experiences and feelings of the women patients into consideration when they planned the procedures. Many clinics now offer counselling to couples who are using IVF, and that is absolutely positive and necessary. Perhaps clinics should also include their counsellors in the planning of procedures, so that the counsellor's opinion could help improve the experience of the patients. In practical terms, the counsellor could express to the doctors the difficulties that some of their procedures have caused patients in the past (the counsellor must still maintain the patients' confidentiality at all times), so that in future, the doctors can try to use different positions, or have fewer people in the room, for example. Clinics should not exacerbate what is already a very difficult situation for the patients, and the practitioners should remain open to implementing changes whenever possible, to ensure that negative experiences are minimized. Fertility clinics could also improve their treatment of their patients' male partners. For the sperm collection process, some clinics do not provide men with enough privacy or even spaces that meet basic comfort needs. This can mean that men, already in a stressful position, are forced to masturbate in extremely embarrassing or uncomfortable places. Shanner (2000) gives one example of a man who was sent to a utility room to masturbate on the same day as his wife's egg retrieval surgery, and was left to sit on the cement floor, between a mop and bucket, with a pile of pornographic magazines. This treatment is thoroughly unacceptable and shows a lack of respect for basic dignity. Ensuring a basic level of respect, along with putting some thought into the experiences of the patients and their partners – for which consulting with

the counsellors would be helpful – is necessary for fertility clinics to improve the experiences of their patients.

Another way in which IVF fragments the reproductive process from its “natural,” unassisted state is by unevenly distributing the control over the procedure, by removing most of the control from the woman and her partner, and giving it to the doctors. For patients, this lack of control is one factor which can both hinder and help the positive aspects of the experience of assisted reproduction. The way in which IVF fragments the reproductive process and displaces control from the couple to the medical professionals is not necessarily a negative experience for all women. Rather, some infertile women, for whom attempts at unassisted conception has been a frustrating and difficult experience, are grateful to be able to change their approach to reproduction by allowing the control to transfer to the hands of professionals. In this case, handing over some control to professionals may, ironically, give the infertile couple back a sense of control over their fertility. For example, Cussins (1998) found that couples who used natural cycle IVF (in which drugs are not used to promote ovulation) felt an increased sense of personal failure if the cycle did not work compared to couples who placed more control in the hands of their doctors by using superovulatory drugs. For these couples, increased control meant increased responsibility. Alternatively, a limited sense of control over IVF treatment can be positive, such as cases where clinics allow either the woman or her partner the ability to give the patient her injections, so that hormone injections can be done in their own home. This ability to participate may further their sense of control in a positive way (Lasker & Borg, 1987). Farquhar (1996) adds that merely deciding to undertake the IVF treatment can give an infertile couple a sense of power over physical

processes that have gone awry. Furthermore, Birke (1999) states that the processes embedded in medical, scientific narratives often do not reflect women's experiences of their bodies – so that infertility, for example, may become a story about *the* body more than about *my* body. Restructuring the infertility experience in this way may help women to generalize their medical treatments, thereby allowing them to relinquish some of the responsibility and guilt they may feel because of their infertility. Thus, for some people undergoing IVF, placing control in others' hands, while still retaining some limited sense of participation at the same time, may allow the couple to feel as though they are participating, without having to feel fully personally responsible for the outcome.

It is evident that infertile women can experience a loss of control as either a positive or negative aspect of fertility treatment; it is even possible to experience treatment both positively and negatively simultaneously. Considering that infertility involves feeling frustrated with her body's failure, a woman may welcome the opportunity to distance herself from her body. At the same time, however, being forced to give up control over her reproductive processes may also alienate a woman from the processes of her own procreation in ways that compound the alienation she may already feel from her body. It is likely that differences in women's reasons for pursuing IVF may shape the degree to which they experience distancing in positive and/or negative ways. For instance, perhaps a woman who seeks IVF largely because she desires the embodied experience of pregnancy may value her bodily experiences to such a degree that IVF causes negative feelings of being fragmented from her own body.

Women who undergo IVF because they want the experience of pregnancy are using the procedure for a reason that is not the primary purpose of IVF. In doing so, they

are largely enacting their own agency upon the procedure. IVF aims to create a genetically related child for the infertile couple undergoing the procedure. At the same time, any feminist analysis of IVF must also acknowledge that IVF allows a woman to experience pregnancy, which is an important and valued experience for some women (Bergum, 1989; Michaels, 1996; Rothman, 1989; Stanworth, 1990; Strathern, 1992b). While using IVF for the purpose of experiencing pregnancy may be the primary goal for some women, it is often secondary to the medical goal of using a couple's own gametes to achieve a pregnancy. This focus on gametes is a result of the social, historical, scientific, medical emphasis on genes – everything from the increasing role of genes in shaping identity, to the continuing part that genetically related children have in the creation of nuclear family, and the historical phallocentrism of defining a family according to the genetic father – and emphasizing gametes serves to further reinforce a genetic emphasis. Although the experience of many women is that using IVF to have a genetically related baby and experience pregnancy is positive, the social context from which this grows and the consequence of reinforcing the normative nature of the genetically related nuclear family is not an emphasis which is overly positive for the general social situation of women.

The issues surrounding women using IVF “against the grain” (to use the postmodernist term) exemplify the complexity of women's agency and autonomy in relation to the use of IVF. Women who use IVF in an attempt to experience pregnancy are utilizing the limited agency that is available to women who use IVF. Women's agency in this area is limited mostly because their agency occurs on an individual level. Within fertility treatment, the majority of women's power is accorded them as consumers

(Stanworth, 1987; Wajcman, 1994), which is a limited, individualistic type of power that commodifies the reproductive process. This situation exemplifies the tension between individual women using the limited agency that is available to them, and the unlikelihood of all women being able to be autonomous when the broader social, economic, racial, and heterosexual context is considered (Sherwin, 1998). On a concrete level, the tension between women's agency and autonomy means that IVF needs to be recognized as an experience that can increase the sense of reproductive freedom for many individual infertile women (Sherwin, 1992). Thus, access to IVF is important for many women, and access should be improved by eliminating the arbitrary gatekeeping policies that discriminate against women and couples on the basis of class, sexual orientation, and marital status. Therefore, public funding should also be available for IVF so that women and couples are able to access treatment regardless of their economic position. However, even with improved access that could increase individual women's sense of agency, feminist analyses of IVF's development, procedures, and clinical practices would remain vitally important to improving women's experiences with IVF, infertility, and reproduction in general.

It is essential for feminists to contribute prolifically to the debate around IVF, so that the impact of IVF on women as a social group can receive increased attention – a difficult feat in such highly individualistic social, scientific, technological, and medical contexts. Women experiencing infertility need to maintain their access to infertility organizations such as the Infertility Network, and the Infertility Awareness Association of Canada because these organizations are an important avenue of support for women and they enable women to work collectively towards changes that could improve their

experiences with IVF. I think that it is also important for feminist critics of reproductive technologies and non-profit infertility organizations to recognize the value in working together to achieve their goals. Infertility organizations could benefit greatly from considering feminist analyses of how infertility and reproductive technologies can shape women's experiences in positive and negative ways. Meanwhile, feminist analyses could be improved by learning more about women's personal experiences with reproductive technologies (Menzies, 1994), which are often a focus for infertility organizations.

Currently, infertility organizations seem intent on making use of women's limited agency as consumers, while increased association with feminists could broaden organizations' awareness of issues regarding the contexts surrounding reproductive technologies and perhaps help infertility groups work in conjunction with feminists to achieve greater levels of autonomy for women. There is also a disturbing trend of infertility organizations affiliating with pharmaceutical companies (Basen, 1994); while this alliance reflects the great need for funding of infertility organizations, these affiliations could also lead to the dissemination of biased information. By working in cooperation, feminists and infertility organizations could achieve important changes at individual and collective levels. Changes could include altering clinical practices, and could also expand to the level of broad social changes around reproduction, family structures, critiques of scientific and medical objectivity, and combating the rampant individualism that justifies social, scientific, technological, and medial reductionism. Exposing the potentially harmful impact of geneticization on society's view of women, children, and humanity could help to counteract the current privileging of genetic conceptions of health, individuals, and families.

V. Conclusion

IVF exists within the context of science, technology, and medicine, and also within the broader social context of the historical and cultural construction of norms regarding reproduction and family formation. As such, this treatment is shaped by numerous social forces. IVF reflects the widespread social privileging of individualistic, reductionist values, as it reduces individual women to their reproductive capacity alone and largely ignores the broader context of women's lives. This technology is perceived by many women to be an integral and necessary procedure that allows them to feel that they are exercising their reproductive freedom. Many women experience IVF as having a positive impact on their lives, but this feeling is limited to affecting only some women on an individual level. As well, the potential positive impacts are available only to women in particular social groups which are differentiated in a way that clearly reflects the dominance of the genetically related nuclear family.

The socially constructed focus on having genetically related children is not a new aspect of reproduction. Rather, this thesis has shown that the preference for genetically related children has been a part of Western society throughout most of its history. It is a focus that privileges the viewpoint of men by defining parenthood according to the aspect of reproduction in which men participate. The emphasis on genetic families has been reinforced by social structures and values that reinforce the dominance of the male perspective in defining families. *In vitro* fertilization is merely a newer way of enabling this particular family form. IVF also maintains a focus on the male perspective in

reproduction, and in doing so, often obfuscates the major contributions and risks that are shouldered by women alone.

A reductionist, genetic-focused view of women's reproductive capacity is privileged in IVF, where the whole procedure is centred around allowing gametes, genetic material, to be manipulated outside of a woman's body. The primacy of genetics reflects the social focus on the normative genetic family. As long as individual women, who also exist in the broader genetic-focused social and medical context, feel that IVF increases their reproductive freedoms, this technology should be made available to all women who experience it as such. The practices around IVF should be improved to make the experience more positive for the women who choose to go through it. While women who choose to should be able to access this technology, from a feminist perspective, IVF's reinforcement of the normative genetically related, nuclear family does not necessarily represent increased freedoms for women as a social group. However, if gatekeeping policies were changed to improve the accessibility of IVF to women who do not fit into the nuclear family norm, such as single women and lesbians, then the practice of IVF could de-emphasize its reinforcement of the nuclear family and allow IVF to be experienced as more liberating for women as a social group. Of course, this would not minimize the difficult experience of undergoing IVF itself, and it is necessary for scientists, physicians, feminists, policy-makers, and infertility organizations to ensure that practices around IVF become as safe as possible, as well as to inform women considering IVF about all of the potential risks and difficulties that having IVF may entail.

Reproductive technologies deconstruct the formerly taken-for-granted, “natural” process of reproduction, but in doing so, they expose the fact that those “given” facts around procreation are social constructions (Farquhar, 1996; Strathern, 1992b). Since humans began to explore the basis for reproduction and kinship, social roles and meaning have been assigned to women, men, children, and families. Reproductive technologies provide an opportunity to analyze the means by which Western society continues to construct reproduction, but unravelling the social perception of reproduction is not a simple task. This analysis involves examining the social historical treatment of reproduction, the current normative notions about the family, and how the social norms around reproduction construct the experience of infertility. As well, analyzing fertility treatment necessitates an exploration into the scientific, technological, and medical contexts within which reproductive technologies are embedded. Given the seemingly radical departure of IVF from “natural,” unassisted conception, perhaps the most surprising conclusion is that IVF often reflects and reinforces the current social norms regarding reproduction, the family, science, technology, and medicine. That is, IVF as it is currently practiced is a new way of creating more of the same. It is not experienced in the same way, however, so that women who go through IVF as part of their reproductive experiences will have different experiences than they likely ever expected to have with regard to their reproduction. Still, the underlying goal of IVF remains focused on reinforcing the genetic relationship between parents and children, thus reinforcing the normative nature of the nuclear family. IVF shows that even a new technological development, which appears to disrupt many of the traditional beliefs around reproduction, is based in its social context to such an extent that it actually reinforces the

normative power of the traditional genetically related nuclear family. Often, it does so at the expense of women, but IVF also opens up avenues of limited agency for women that are important to recognize. These avenues will remain limited, however, until the current ideological, social, legal, economic, and medical norms that privilege the genetically related nuclear family begin to emphasize less individualistic, geneticized conceptions of personhood, parenthood, and families.

Endnotes

¹ I use the term “sons” deliberately, because when the inheritance system shifted to a patriarchal one, daughters generally didn’t inherit money or property from their fathers. Instead, they married; their status then depended on the social and economic status of their husbands. In the event that a man didn’t have any sons, his sons-in-law would usually inherit his money and property.

² My use of the term patriarchy borrows heavily from the radical feminist view of patriarchy as a system of social organization through which male attempts to control women have justified a range of social controls over women’s bodies, sexuality, and reproductive capacity.

³ Pinto-Correia argues that these scientists were frequently able to see what they were already looking for.

⁴ Cross-cultural examples of the diversity in family forms include the Caribbean belief that the bonds formed through raising children are unbreakable regardless of whether there is a genetic link, and the West African practice of fostering and child exchange in order to encourage social trust between families and to allow the child a variety of familial experiences (Coontz, 1992). As well, the Ojibwa valued social ties to such an extent that that about half of all households contained adopted children (Greil, 1991).

⁵ Within the past few decades, feminists have played an important role in resisting the disciplinary power of the nuclear family, as have the gay and lesbian movement, and anti-racist feminist accounts of the varying experiences of non-nuclear family forms among people of colour living in North America. For example, see Mandell and Duffy (1988; 1995).

⁶ Public awareness of infertility and ARTs is most heightened in cases of celebrities speaking out about their experiences. One of the most famous cases is that of singer Celine Dion, who reportedly underwent both IVF and ICSI (a procedure that injects one sperm directly into the egg) because of her 58-year-old husband’s infertility. In June of 2000, the singer announced that she had become pregnant using IVF and then allowed her fertility doctors to speak to *People* magazine about the procedure (Smolowe, 2000).

⁷ This section focuses on the experiences of partnered, heterosexual women who are infertile. My exclusive focus on this group grows out of my overall discussion of the privileging of genetic ties within the normative nuclear family, an analysis which is most applicable to women in this group.

⁸ It is important to note that most studies of the experiences of infertile people draw from people who have been involved with a fertility doctor/clinic. The studies that I cite in

this section tend to be made up of people who have undergone at least some level of fertility treatment – surgery, drug regimens, use of ARTs. Thus, they represent the experiences of a particular group of infertile people, and it is likely that some groups are excluded. These may include people who choose not to have treatment, those who adopt without attempting medical treatments, those who are relatively unaffected by their infertility, and people who live in poverty.

⁹ The current Western social context, in which birth control is easily obtained, widely used, and fairly reliable has increased the notion that a woman's fertility is within her control. This exacerbates the feeling of loss of control that many infertile women experience.

¹⁰ It is important to recognize that for couples with male factor infertility who choose to undergo infertility treatments, the woman is also the one who becomes the patient. From a feminist perspective, the issue of perfectly healthy women being treated with fertility drugs and invasive procedures is a problematic situation.

¹¹ Even living in or near a major city is often not enough; there is only one clinic in each of the Prairie provinces, and only one in all of the Maritime provinces, located in Halifax. In comparison, there are eight clinics in the Greater Toronto Area.

¹² This move cannot even be justified as saving a lot of tax payers' money, since within the context of ARTs, DI is relatively affordable - costing as little as \$200 in Canada (Halifax Assisted Reproductive Technologies).

¹³ This problematic distinction is based on the notion that to be "medically infertile" means that one has a physiological origin for their infertility, while to be "socially infertile" refers to someone whose social identity (this problematically assumes that sexual identity is social) is such that he/she does not desire a sexual relationship with a person of the opposite sex. These concepts are based on the false notion that there is a clear distinction between the physical and social experience of infertility. "Social infertility" can be applied to single heterosexual women who desire a child but not via a sexual relationship with a man, and to lesbians who want to have a child. This distinction is extremely problematic in terms of its lack of respect accorded to single women and especially lesbians; it implies a frustration with women who just refuse to have sex with men, which in the case of lesbians implies a sense of choice in the matter of their sexual orientation that many lesbians have never experienced. In addition, it raises the question of how far gay men's rights go in terms of their chance to become biological parents – are they to be considered "socially infertile" in the same regard as lesbians? If so, should they be allowed access to surrogates? Using donor sperm and hiring a woman to carry one's genetically related child for nine months are two very different issues.

¹⁴ A recent example of this includes some of the international media reports concerning the Japanese Crown Prince and his wife Princess Masako, who, after eight years of marriage, have not had a baby. There has been much media speculation around their possible use of IVF attempts. The British newspaper *The Independent* reports that a

German newspaper *Suddeutsche Zeitung* recently published a photograph of the Crown Prince with the words “*dead trousers*” printed across his groin to imply that he is impotent. The German newspaper later apologized to the Japanese government (Parry, 2001). Nonetheless, this case demonstrates that myths connecting male infertility to a man’s sexual adequacy remain prevalent.

¹⁵ Within this discussion, I use the term “science” to refer to research into the physical world, specifically research into the physiology and physical processes involved in reproduction and genetics.

¹⁶ I do not wish to imply that genetics is irrelevant. On the contrary, I believe that genes do play a significant role in determining health, and perhaps to some extent, even personality or behavioural traits. However, the social context of every person also plays a key role in personal development. Genetics informs one’s development, but it is not the only determining factor. Rothman (1998) uses the analogy of baking bread, such that one can use the exact same amounts of the same ingredients every time, but the bread can turn out differently due to various subtle changes in the environment; similarly, the exact same genotype in different environments is not likely to produce mere copies of the exact same person. The current study of genetics tends to lack an appreciation for the environment.

¹⁷ The retrieval of a large number of eggs, in combination with embryo freezing techniques, allows doctors to freeze the resulting embryos that are not implanted during this attempt. Thus, a couple can make future attempts at embryo transfer without going through the drug regimen and egg retrieval process (Edwards, 1991). However, feminists draw connections between the use of drugs to promote superovulation and the need for scientists to have access to extra embryos for experimentation (Crowe, 1990; Sawicki, 1991). This raises the question of whether infertile women or scientific researchers benefit most from the use of these drugs.

¹⁸ The male partner is required to provide a “fresh” semen sample, provided around the same time as the woman is undergoing the egg retrieval. Sperm is then “washed” in a chemical bath. In some cases, the “swim up” method of “washing” sperm may be performed. This involves having the semen sample centrifuged, then removing the seminal fluid so that a “sperm pellet” remains. This high concentration of sperm is then placed in a chemical bath for an hour, during which the most motile, active sperm “swim up” to the top of the solution. This is the sample which is then placed into a petri dish along with the woman’s eggs (Schmidt & Moore, 1998).

¹⁹ The maximum number of embryos transferred varies with the clinic. It is recommended that clinics limit the number to two, but the Reproductive Endocrinology Centre in Halifax has a maximum of three, and some clinics use even more. The fact that many clinics set limits on the number of embryos allowed to be transferred arises from the controversy surrounding the high risk for multiple pregnancy that goes along with the transfer of a number of embryos. Before doctors began to limit the number of embryos transferred, the notion that the chances of pregnancy would be greater when a number of

embryos were transferred led women to a much higher risk of having highly multiple pregnancies (Laborie, 2000). When the number of fetuses are high enough to pose a significant risk to the health of the woman and all of the fetuses (often anything over triplets), women are encouraged by physicians to consider undergoing selective reductions, in which only some of the fetuses are aborted. Undergoing selective abortion is an extremely difficult issue for women and their partners who have already invested so much in getting pregnant. In addition to the emotional trauma, there is a 10% risk of all of the fetuses being aborted (Laborie, 2000). Even in the majority of cases in which the procedure works and only the selected number of embryos are aborted, this can be an emotionally traumatic experience. Laborie (2000) argues that “this technological correction of a technological error truly constitutes a strong trauma, an almost unthinkable contradiction” (p. 300). All of this may be an unnecessary risk, according to research in 1998, which concluded that the chances of pregnancy do not increase beyond the insertion of two embryos (Andrews, 1999).

²⁰ However, a recent study conducted in Canada found that among women undergoing treatment for infertility, 55% either did not know their chances of getting pregnant, or thought that their chance was at least 50% (Stewart et al., 2001).

²¹ Although feminist geneticist Evelyn Fox Keller (1995) states that children inherit through the cytoplasm of the egg, in addition to inheriting from DNA, none of these articles mention this as a concern for those attempting to develop this technique.

²² Of course, outside of the context of infertility and IVF, women may experience the interests of a fetus or potential fetus as conflicting with their own interests. This is likely one reason why some women have abortions, and it is important to recognize that all women do not feel a desire to experience pregnancy, or to experience it holistically. However, within the context of IVF, this fragmentation is likely to contribute to women’s fragmentation from the process of their attempts to have a wanted pregnancy.

²³ This clinic determines pregnancy by performing a blood test approximately 18 days after the embryo transfer.

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