Negotiating Acceptability of the IUD

Contraceptive Technology, Women's Bodies, and Reproductive Politics

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Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
In
Science and Technology Studies

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May 4, 2004
Blacksburg, Virginia

Keywords: Intrauterine Device, IUD, Contraceptive Technology, Fertility Control, Reproductive Politics, Women's Bodies

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Abstract

In this dissertation, I deconstruct the commonly held assumption that the intrauterine device (IUD) is an unsafe and/or obsolete contraceptive method that has been used mostly to impose population control on women in developing countries. Simultaneously, I explore the changing meaning of the device over the last 40 years in varying socio-historical contexts. Capitalizing on the analytical tradition of science and technology studies that regards technology as socially constructed, I analyze the IUD as a technology that transformed through a series of material and discursive negotiations. Negotiations over the IUD took place in multiple layers, most notably in the social and political domains that defined the meaning of the contraceptive technology, but also in the domain of science, in which claims about the device's technical features and its relationship with the biological body were made. This work is divided into the examination of four major domains – global population politics, American contraceptive market, American antiabortion politics, and scientific research – within which the IUD took shape both materially and discursively. The historical development of the scientific research and discourse of IUDs are juxtaposed with the prevailing socio-political background to illustrate the intricate relationship between scientific research of contraceptive technology and the politics of fertility control. The final chapter addresses the agency of IUD users, introducing the ways in which women in developing countries have manipulated the IUD to achieve reproductive self-determination.

Acknowledgements

I have received support and encouragement from numerous people during the course of writing this dissertation. I am deeply indebted to my dissertation committee chair, Timothy Luke. His support, guidance, and inspirations kept me motivated throughout my academic career. Saul Halfon has been most influential in my pursuit of my current work. He has mentored me closely and thoughtfully throughout the project, for which I am grateful. I would also like to express special thanks to Bernice Hausman, Ann LaBerge, and Gerard Toal for their insightful comments, consistent support, and professional advice.

I would like also to thank the Women's Studies Program at University of California, Santa Barbara, where I spent my final year as a Dissertation Fellow. The fellowship provided an ideal environment for dissertation writing and offered excellent opportunities to interact with other feminist scholars. Laury Oaks of the UCSB Women's Studies faculty, in particular, provided useful comments on the drafts.

I received support throughout the years of my graduate studies from faculty members and graduate students of the Science and Technology Studies (STS) Program at Virginia Tech. I would like to particularly mention Martha McCaughey, former director of the Women's Studies Program, who gave me invaluable guidance toward reaching my career goals. The influence that the graduate students in STS have had on me throughout the years extends beyond this dissertation. I am very fortunate to have had them as my friends and colleagues.

Barbara Crane should be credited for planting the seed in my mind about the IUD. I thank Sheldon Segal of the Population Council for the interview he granted me for this project.

I spent many hours at Bollo's, where most of my quality thinking, reading, and writing took place. I know that I am not the only graduate student who thanks the coffee shop for providing us with a much needed friendly work environment.

Finally, I thank my family. My parents stood behind my decision to pursue a Ph.D. and waited patiently for seven years. My daughter Claire has given me joy for the same number of years. The final phase of writing this dissertation coincided with the beginning of a new life with my husband Preston. He has helped me get through the last stretch of this project. I dedicate this dissertation to him.

Preface

Since starting my research on the intrauterine device (IUD), a small device made of plastic that is inserted into the uterus to prevent pregnancy, a number of women – friends, acquaintances, and audience members of my talks – have shared with me stories about their IUD experiences.[1] The stories that have moved me the most were about injuries women suffered from the Dalkon Shield IUDs. An acquaintance of mine obtained the Shield upon marriage in the early 1970s, feeling liberated by the sexual freedom she felt she had been granted. Complications with the Shield, which had to be cut in half before it could be removed from her uterus, most likely led to her sterility. She had two pregnancies, both ectopic, which is a condition associated with pregnancy progressing in the fallopian tube rather than the uterus. From what I now understand about the Dalkon Shield IUDs, I suspect that the device became embedded in her uterine wall causing infections that scarred shut the openings of her fallopian tubes. Another friend in her fifties obtained her Dalkon Shield from the student health center when she was in college. After a few years, her doctor declared that her cervix was a "mess," and she, too, was sterilized by the infections associated with the use of the Shield. My own generation reached reproductive age after the Dalkon Shield had already been withdrawn from the market. I have tried the Copper-T IUD myself, and have talked to women who use and "like" the method. While I show how the IUD can be a "choice" for women today, it is never meant to undermine the tragic experiences of women who were injured by IUDs, especially during the 1960s and 70s, when corporate greed and medical ignorance unnecessarily victimized a generation of women.

[1] Men, too, have volunteered their stories. I selected only a handful of stories here due to space limitation.

A common response I get from people over 30 years of age is that they did not think the IUD was "still around." Once in a while, young women concerned with the long-term effects of hormonal contraceptives or those whose mothers preferred the IUD would express favorable interest in the method. But for the most part, young women that I have talked to refer to negative stories told by their mothers and aunts and "cannot believe that any woman would want to insert a foreign object in her uterus." Upon hearing that the IUD is the most prevalent reversible contraceptive method in developing countries, one college student made an implicitly classist comment; she said "IUDs may be OK for those women who don't have good health care, but we have access to the pills, so I don't see why we should use it."

The contraceptive pill had its own controversy over safety during the 1970s, but it was overcome fairly quickly and the method never lost its popularity. Why then is the IUD so unpopular in the United States, despite the fact that it is not only the most prevalent method in the developing world, but is also used by a significant number of women in some Western European countries? Much of what has been written about the IUD is either a critique of its role in population control or about the Dalkon Shield and its victims. These works paint a rather straightforward picture that the IUD is either a method of birth control for underprivileged women or dangerous. I argue that existing critique of the IUD do not account for the complex negotiations that took place to maintain the device's acceptability. This work is motivated to a large extent by the fact that the story of IUDs has not been told in full and my conviction that the history of the device deserves a close examination. Following the device over the last 40 years, I

illuminate the complex interactions between various reproductive politics that shaped the discourse of the device as well as its material make up.

The issue that intrigued me the most was the relationship between body and technology. The reproductive bodies are the locus of control in discourses and practices of various politics of fertility control. Whether we are talking about sexual freedom, population control, or antiabortion politics, reproductive bodies are the target of surveillance and manipulation; bodies are disciplined to follow a certain reproductive norm. Social control and biological regulations of reproductive bodies converge at contraceptive technologies; contraceptive technologies provide plausible means to discipline reproductive bodies to comply with certain reproductive norms and to control the biological aspect of fertile bodies. Contraceptive technologies, therefore, offer a unique site through which I can examine both social constructions of fertility management and the scientific endeavor to control reproductive biology as well as the interaction between the two.

Reproductive bodies are the locus of control in the development of contraceptive technologies, an arena that falls under science. Scientists intervene in the social and political control over reproductive bodies using their expertise in the regulation of the biological bodies. How are we to make sense of the relationship between the technological manipulation of the biological body and the disciplining of social bodies as a population? Does Foucault's concept of bio-power provide a useful framework?[2] I have not come up with a ground-breaking theory of bodies and technologies. I have, however, demonstrated that contraceptive technologies mediate the regulation of the

[2] Foucault (1978)

body at multiple layers, including discourses of fertility control and scientific research, which are enmeshed in the web of reproductive politics.

I am equally concerned with what this study means for real women. Most of my study concerns the construction of the device, which allowed me to investigate how women of different race, class, nationality, age, and parity are implicated differentially in the multiple phases of IUD development. I have not been able to answer fully how being "implicated" by contraceptive developers translates into how women actually experience the device. Collecting testimonies of past and present IUD users to understand how the technology affected the real lives of women was not part of my methodology, although I have taken the liberty to refer to the stories that women and men shared with me informally as "personal communication." In order to address the agency of women, I wrote chapter six, which introduces the ways in which women in developing countries have manipulated the IUD to fulfill their reproductive self-determination. This was done in a way to fulfill my own need to address this issue.

What I have done is to demonstrate that the acceptability of the IUD has been negotiated over time under different socio-political circumstances for different sets of implicated users. I also demonstrated that the science of the IUD is embedded in socio-political contexts: Scientific claims made about the device have close ties to the social and political current that legitimizes the device. I have read the scientific discourse of IUDs closely against its socio-political background while I followed closely the development of the device. This dissertation is a starting point for my future work, in which I wish to develop a more complete study of the social history of the IUD as well as contribute theoretically to the body/technology relationship. This is an on-going project.

Table of Contents

List of Figures

Chapter One: Introduction

The IUD has been a controversial technology of fertility control ever since the method was revived in the early 1960s by scientists and philanthropists whose main aspiration was to use the device to stem population growth in the developing world. The IUD was considered an ideal tool to control the fertility of women who were "not self-motivated" because the device had a long-lasting contraceptive effect and was difficult for a user to discontinue without medical attention. Advocates of women's reproductive rights have critiqued the IUD as a "population control tool" developed with the intention to undermine women's reproductive self-determination. During the 1970s, the safety of the IUD came under serious scrutiny following reports of deaths among Dalkon Shield users. Subsequent studies showed that Dalkon Shield users, and other IUD users to some extent, were at a higher risk of contracting pelvic inflammatory diseases (PID), which if untreated or aggravated could cause infertility. Mounting litigation against IUD manufactures during the 1980s resulted in withdrawals of all but one IUD model from the American market. Even though new models are now available and some American physicians today offer them as "birth control for mothers," many still believe that the IUD is an unfavorable option for American women. Meanwhile, the IUD has become the most prevalent contraceptive method in the developing world, where 80% of the more than 150 million users reside.

This work evaluates the commonly held assumption that IUDs are an unsafe and/or obsolete device that is used only in developing countries and explores the changing meaning of the device over the last 40 years in varying socio-historical

contexts. In struggles to gain control over the fertility of women, population control advocates, scientists, pharmaceutical companies, women's health advocates, antiabortionists, and IUD users have mobilized the device in their discourses. Negotiations involving technologies must always be evaluated together with the social interests that provide meaning to the technology. It is particularly relevant to consider who is negotiating control over whose fertility. Examining how controversies involving IUDs have been embedded in the negotiations over "who should control which women's fertility and how" helps us navigate socio-historical moments that shaped women's relationships with contraceptive technologies. In other words, the IUD is a privileged object that allows us to examine the layers of meanings behind concepts such as "women's choice," "fertility control," and "reproductive bodies." Sorting through conflicting perceptions about the IUD, my work sheds light on the implications that the contraceptive technology has/had for the reproductive lives of women globally.

The goal of this study, however, is not to neatly trace the conflicting claims to their origins. The aim is to explore the relationships among science, women's bodies, and reproductive politics with contraceptive technology serving as the common denominator and an analytical window. A close reading of scientific discourse that defines contraceptive technologies reveals that science operates under the influence of reproductive politics. Reproductive politics, whether its goal is to expand or limit women's control over their fertility, mobilizes contraceptive technologies to realize their agenda. Women's bodies are the locus of control whether one is an advocate of certain reproductive agenda or a scientist trying to define the relationship between a contraceptive technology and the body. Ultimately, science and politics construct

"women's choice of contraceptive technology" through co-constructing the scientific definitions of contraceptive methods, reproductive agenda, and representations of women and their bodies.

The major question that structures the dissertation is: how has the acceptability of the IUD been negotiated in varying socio-historical circumstances for different sets of users? As I explore this question, the dissertation illuminates the varying ways in which the IUD has been inserted into multiple reproductive agendas that implicated women of different races, class statuses, and nationalities. Capitalizing on the analytical tradition of science and technology studies that regard technology as socially constructed, my dissertation analyzes the conflicting representations of the IUD as co-productions of technology, discourse and social order.

Domains of Negotiation

I argue that the IUD has been configured and reconfigured, materially and discursively in relationship to multiple forms of reproductive politics over the last 40 years. The meaning of the device has changed significantly as the politics of fertility control transformed. Every time the IUD found itself in a different social and political climate, its supporters renegotiated the device's acceptability through material and discursive reshaping. The negotiations and reconstructions of the device took place in multiple layers, most notably in the social and political domain that defined the meaning of contraceptive technologies, but also in the domain of science, in which claims about the device's technical features and relationship with the biological body were made.

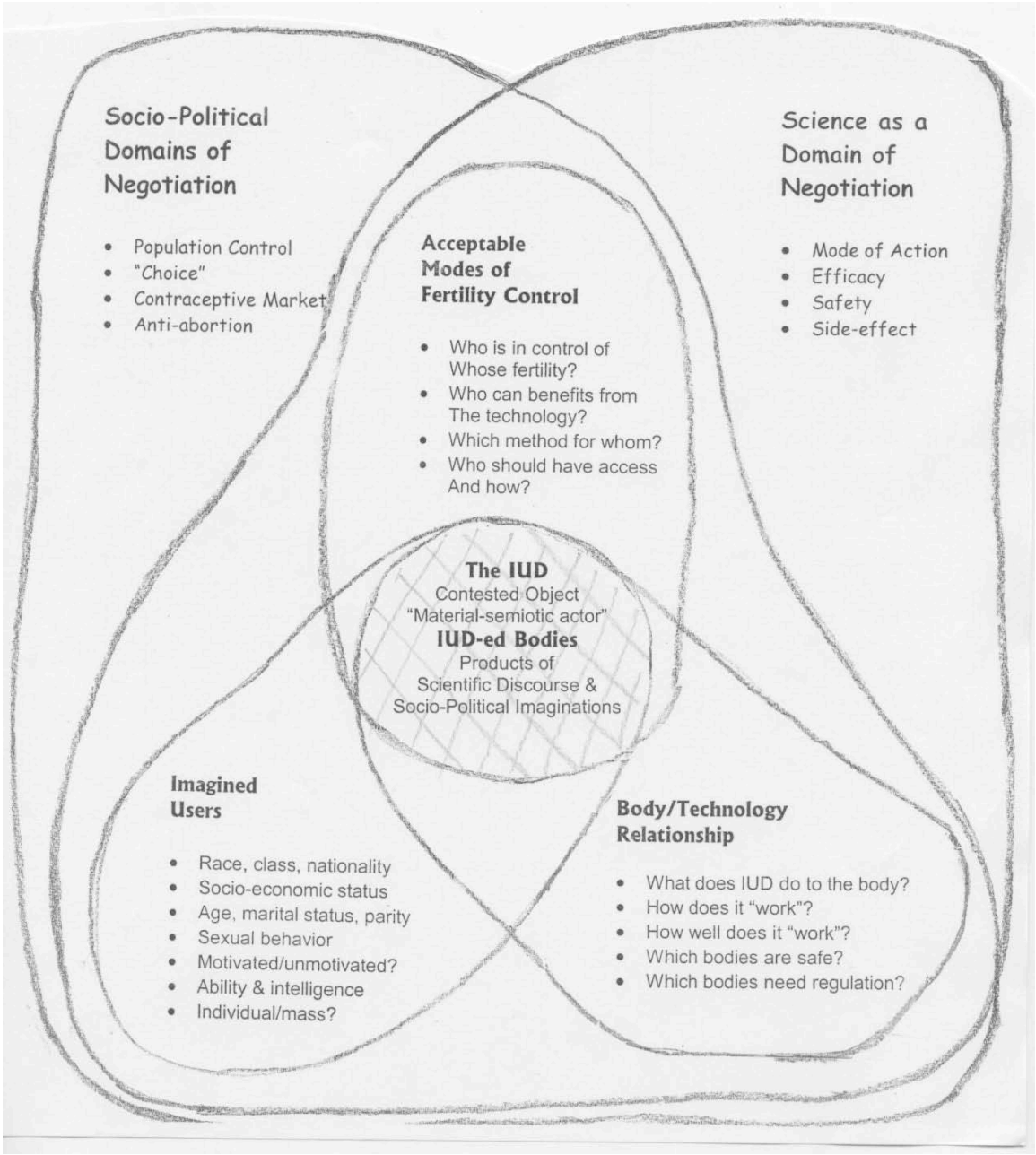

Figure 1. Domains of Negotiation for the IUD and interrelated elements

Figure 1 visualizes the conceptual framework of how the IUD emerges out of negotiations that take place in socio-political and scientific domains. The IUD and what I call "IUD-ed bodies" emerge out of processes during which other interrelated elements

such as the acceptable mode of fertility control, user profile, and body/technology relationship are negotiated. Meanings assigned to the IUD shifts depending on what kind of fertility control is deemed acceptable, who the users are imagined to be, and which technological feature as it relates to the body is in focus. I have divided my analyses by domains of negotiations to illustrate that different socio-political contexts have shaped what the IUD is today. I provide below, a brief introduction of the socio-political domains that I examine, followed by an explanation of how I analyze the domain of science and its interface with the socio-political context.

Global reproductive politics as domains of technological negotiation

The politics of reproduction greatly affects women's 'choice.' Here I offer a simplified distinction of the differences among three discourses of reproductive politics, namely population control, women's rights to reproductive control, and antiabortion, and how each movement mobilizes contraceptive technologies. Population control is concerned with restricting the number of births in certain groups that are deemed undesirable to reproduce. Reproductive choice of individuals is subordinated to the overall goal to reduce the number of undesirable births at an aggregate scale. Contraceptive technologies are mobilized by third parties, such as the government and health care providers, as a tool to control the fertility of women. Women's rights advocates, on the other hand, strive for greater control by women and the realization of individual woman's reproductive choice. From their point of view, contraceptive technologies can be a liberating tool if they assist women in gaining control over their fertility. Simultaneously, they are wary of a technology like the IUD, which relies on a third

person to help discontinue the method, in that it may be abused by the provider against the will of women. Antiabortionists and closely affiliated political conservatives are not only interested in stopping abortion, but in limiting sexual activities outside the traditional marital relationship. Contraceptives are often seen as the source of the problem that encourages promiscuity rather than welcomed as preventing unwanted abortion. Modern birth control methods do not sit comfortably with the conservative anti-sex and pro-natal agenda.

Although these movements differ at the fundamental level regarding their respect for women's reproductive choice, the intentions of these movements can converge depending on the circumstances and they have certainly formed alliances in the past. The IUD has been inserted into the discourses of all three reproductive politics – population control, women's rights to reproductive control, and antiabortion – rather than belonging exclusively to one. In fact, the technology has been constructed and reconstructed materially and discursively through its interactions with the multiple layers of reproductive politics. In analyzing how the acceptability of the device has been negotiated over the last 40 years, it is essential that varying and intersecting political movements be considered as domains within which the acceptability (or unacceptability) of the IUD has been negotiated. In this work, I examine the shifting role of IUDs in three socio-political domains, which I have named global population politics, American commercial setting, and the American conservative political climate symbolized by the antiabortion movement. The global population politics was the primary domain within which the acceptability of the IUD was initially negotiated. In this domain, I investigate the role of global population politics and policies in the transformation of the discourses

that valorized (and criticized) the IUD as an instrument for socially controlling women's fertility. In the second domain, I analyze the relationship between the IUD and the American medical practice outlining the historical development of the role of IUDs for American women, especially those who have been regarded as consumers. In the third domain, I address the resistances against IUDs from antiabortion movements, and show how IUD supporters countered the attacks on the method and negotiated choice for women. Clarifying the politics of fertility control as the context within which the IUD has been developed, constructed, and represented, helps us understand how the device has been co-constructed with the discourses of reproductive politics.

Science as a domain of technological negotiation

Science is the final domain that I investigate as an area in which the acceptability of the IUD has been negotiated. I examine the historical development of the scientific research and discourse of IUDs, juxtaposing them against the prevailing socio-political background, which I illustrated through the analyses of reproductive politics. By cross-analyzing the socio-political and scientific domains, I illustrate the intricate relationship between scientific research of contraceptive technology and politics of fertility control. I maintain that science is a claim-making practice that exists within our culture. That scientific research of contraceptive technology has a strong relationship with politics of fertility control is evident in the motivations behind the development of the pill and the IUD, which were aimed at preventing overpopulation. The political order the scientists see as their motive affects the scientific discourse and the resulting claims about the technology and its users and the understanding of the relationship between the body and

technology. Science becomes an important domain of negotiation especially because scientists define the technical functions of the device, such as efficacy, side-effects, safety, and mechanism of action, as well as decide who can/should use the device.

The domain of science is also a site that produces discursive bodies of the IUD users. Feminist science studies scholars have done fascinating work demonstrating that the representations of the biological body are not independent of culture and politics. In her influential essay, "The Egg and the Sperm: How Science has Constructed a Romance Based on Stereotypical Male-Female Roles," Emily Martin shows that the medical textbook representations of the process in which the egg joins the sperm are produced through cultural understandings of gender roles. The sperm, for instance, is often portrayed as the aggressor that actively seeks out and penetrates the egg, while the egg is considered as waiting passively and patiently for the sperm. Martin points out that such scientific discourse about biological bodies naturalizes gender stereotypes, which in turn reinforces our perception of appropriate gender roles (Martin 1991). Donna Haraway's insightful work, "The Biopolitics of Postmodern Bodies: Determination of Self in Immune System Disorder," draws attention to the relationship between a political order and the construction of the biological body. In the middle of the Cold War era, the immune system is imagined through an antagonistic relationship between the invader and the self. Part of Haraway's agenda is to highlight the political metaphors embedded in immunology and suggest a view alternative to the Cold War rhetoric of immune system as a battlefield (Haraway 1991). Insights of these two celebrated feminist scholars provide a base for me to argue that the understandings of the IUD-ed bodies are produced through the lens of political orders. I look for evidence that scientists' worldviews are

projected onto their understanding of the biological interaction between the IUD and the uterus. By reading scientific discourses closely against socio-political backgrounds, I illustrate how IUD-ed bodies are produced through social and scientific imaginations. The representations of IUD-ed bodies are constructed and reconstructed as scientific discourses shift in relationship to the reproductive politics and social climate. Subsequently, these representations become embedded in the discourses that negotiate the acceptability of the device for women.

Recurring Themes

Representations of women, body/technology relationships, and women's choice are recurring themes that weave through the different domains of negotiations over the acceptability of IUDs. I am interested in the transformative relationships between scientific claims made about contraceptive technology and women's bodies and reproductive politics. As well, I am interested in examining how "women's choice" of contraception is co-constructed with the discourses of technology and politics of fertility control. As I navigate through different domains to investigate the negotiations over the acceptability of IUDs, I focus on how women are represented in the discourses, how the relationships between the body and technology are understood, and how women's reproductive choice is constructed. Representations of women, body/technology relationships, and women' s choice are the recurring themes that are woven into the analyses of the discourses surrounding the IUD.

Representations of women – Race, class, and nationality

As I investigate the development of the IUD in the different domains mentioned above, I highlight the different ways in which women are imagined in the discourses of reproductive politics and science. While some voices of IUD users have been reflected in the shifting discourses of reproductive politics, the architects of the discourses are mainly non-users including philanthropists, women's rights advocates, religious leaders, and policy makers, who have a stake in reproductive issues and whose influence includes deciding whose fertility should be controlled by whom and how. Women of different races, class backgrounds, ages, and nationalities have been implicated differently in these discourses. Most typically, white, middle-class, Western women are assumed to be responsible contraceptive users who desire and deserve reliable methods of fertility control. On the other hand, it is implied that women in developing countries, non-white American women, and young Americans from lower economic status are unreliable and unmotivated contraceptive users who must be managed to prevent undesirable births. Other profiles of women are invoked to pursue particular agendas as well; for instance, conservative religious groups expect religious women to reject certain methods of birth control including IUDs.

Women are usually not involved during the process of technological development or the scientific research on contraceptive methods except as test subjects. Yet, scientific endeavors that involve women as the users of the product constantly describe women in its discourses. When contraceptives are developed or constructed, it is commonly accompanied by the constructions of contraceptive users; in other words, women are "clearly targeted and thereby configured by technoscience" (Clarke 2000: 40). Because

they are not participants in the research, but merely implicated as users by the researchers, feminist scholars of contraceptive development use the term "implicated users" to describe the users that are imagined in the scientific discourse (Saetnun, et al. 2000). Implicated users are comprised of social users, who are considered in the process of contraceptive development as identifiable persons at the receiving end of the technology, and representations of users, which are the profiles of users imagined by actors involved in the design of technologies. (Van Kammen 2000; Oudshoorn 2000). Social users would include women that fall under categories such as private patients, clinic patients, Western women, women in developing countries, teenagers, and married women who are going to be targeted as identifiable users. Representations of users are in essence characterizations of women that are imposed on a set of social users; they include characteristics such as unreliable women that are prone to pregnancy due to user failure, liberated women desiring control over fertility, and women in need of contraceptive methods. My dissertation will pay close attention to the characterization of implicated IUD users to reveal the politics of reproduction and to contraceptive methods that are being differentially assigned to women of different race, class, and nationality. It will also show that politics drives scientific research and that contraceptive technologies are mobilized to fulfill political interests that affect women's choice. In other words, contraceptive technologies are not just the product of disinterested scientific research. They emerge out of and feed into political interests. Women are configured as recipients while most of them are not engaged in the making of the technology or deciding which methods are made available.

Body, technology, and reproductive politics

Body/technology relationship is a recurring theme in this study. The body of the woman is the locus of control in reproductive politics. Controlling or regulating the bodies is the role assigned to contraceptive technologies in the negotiations over who takes control of whose fertility how. Discourses of reproductive politics and science both construct the body/technology relationship that furthers the legitimacy of the politics at stake.

The body/technology relationship that science defines can appear to be purely technical at first glance. Scientific studies provide information on the contraceptive method's efficacy, safety, side-effects, and mechanism of action, information that women who make contraceptive choices as well as those who debate the acceptability of the method or mobilize the method to fulfill their political agenda rely on. The device's efficacy, safety, side-effects, and mechanisms of action are all a part of the body/technology relationships negotiated and produced through scientific discourses. The viability of technologies of fertility control depends on whether the ways in which the method controls the bodies would agree with the reproductive politics that the method is deemed to support. The bodies that are disciplined through a given reproductive norm must overlap with the ones that are controlled by a certain technology. Hence, a scientific description of the way in which a contraceptive technology regulates certain fertile bodies matters politically. In the negotiations amongst different reproductive politics, the body as the locus of disciplinary power and contraceptive technology as the artifact that enables the control of bodily functions form important relationships that affect women's choice. When selecting their "choice" of birth control methods, providers and users rely on the information provided by scientists. Science and its

resulting technology mediate the reproductive choices made available to women. The dissertation highlights the body/technology relationships that are constructed through science to help us see that what are often believed to be descriptions of the biological bodies are actually constructions and representations, or embodiments of social interests.

Contraceptive technology and women's choice

Another recurring theme that runs throughout the dissertation is the question: what and who determines the relationship between the IUD and women's choice. Langdon Winner (1986) argues that technological objects embody political quality based on interests configured into the design of the artifact. He also points out that the meanings embodied in objects are flexible; the political order that the artifact supports can change depending on the cultural and social circumstances under which the technology is employed. I argue that the IUD is such an object – it has political qualities and it supports certain forms of power and authority, but it can also be used for different purposes. In the production of IUDs through material and discursive negotiations, the IUD once embodied the politics of population control because of the way it was designed to support a system where users are dependent upon providers to insert and remove the device (the device is a provider-controlled method). However, the device does not always have to be oppressive and used against the woman's will. Depending on the power relationship of which the woman is a part, she can renegotiate the material and discursive arrangements to use the device to fulfill her own needs. In other words, IUDs can embody multiple different power arrangements that affect choice.

The dissertation explores how 'choice' is implicated in the multiple constructions of the IUD, which are negotiated within and among various interests concerning fertility control. This investigation helps illustrate the different ways in which choice has been defined for different sets of women by men in powerful positions. When possible, I also demonstrate how women themselves have negotiated their own choice.

Existing Literature

This work builds on past studies of the IUD by social scientists and feminist scholars, most of which have been critical of the method. The progression and effect of the Dalkon Shield crisis have been documented thoroughly in multiple books. Mintz (1985) and Perry and Dawson (1985) were the first to detail the course of events that led to tragic injuries and deaths among Shield users. Mintz, in particular, illustrates how the inventor and manufacturer aggressively marketed the Shield despite many reports that suggested that the device was dangerous for women. Bacigal (1990) analyzes the legal aspect of the Dalkon Shield litigation, while the works of Grant (1992), Hicks (1994), and Hawkins (1997) concern the victims of the device. The origin of the IUD as a population control device has been described by Onorato (1990) in relationship to the history of the Population Council, by Meldrum (1996), who evaluates the statistical program used to validate the method, and by Tone (1999), who concludes that the design of the device is inherently violent and assumes the passivity of women. Hartmann (1995) among a number of other feminist scholars of reproduction criticizes the IUD as a tool that has been abused by the state to impose fertility control on women in developing countries.

Dugdale's 1995 dissertation analyzes the social construction of IUDs including the Grafenberg ring during the 1930s, the plastic IUDs during the 1960s, and the copper-releasing IUDs during the 1970s and 80s. My current work capitalizes on Dugdale's 2000 article, which illustrates the social construction of what she calls the "population-control-IUD," but it extends beyond the scope of her work in terms of the time period covered as well as the layers of analysis. More specifically, my work examines the IUD from the 1960s to the present and closely investigates the scientific discourses against the socio-political context showing how representations of technology and women's bodies have been constructed through multiple layers of negotiation.

My work is also informed by studies of hormonal contraceptives – Clarke (1998), Watkins (1998), Marks (2001), and Oudshoorn (1994) -- which provided important background, insight, and comparison for IUDs. The history of reproductive politics outlined by Reed (1983), Gordon (1990), Hartmann (1995), and Petchsky (1984) have been the basis for navigating the social background behind the development of the IUD.

A Brief History of the IUD

In order to familiarize the readers to the evolution of the IUD, I provide below a brief, descriptive rather than analytical, history of IUD development.

The 1920s and 30s: The Grafenberg Ring, the first modern IUD

Ernst Gräfenberg of Germany is most commonly referred to as the inventor of the first modern IUD. The Grafenberg ring, developed in the late 1920s, was a small ring made

of silkworm gut and coiled silver that was compressed and inserted into the uterus. The Grafenberg ring appeared at a time when changes in social attitude towards sexuality had formed a favorable climate for a new contraceptive method. The device was greeted with much interest from the European birth control movement, and Gräfenberg was invited to speak at the Third Congress of the World League for Sexual Reform held in London in 1929 and at the Seventh International Birth Control Conference in Zurich in 1930 (Davis, 1971).

The concept of intrauterine contraception itself was not novel at the time of Gräfenberg's invention. In fact, it dates back to the ancient practices of Arabs and Turks, who knew that inserting a small stone through a tube into the uteri of camels would prevent pregnancy (FDA, 1978). Pessaries pre-existed the IUD as devices that are inserted into the uterus. They came in various materials and shapes, but commonly had a part that was inserted into the uterus and a stem remaining in the vagina. They were used in attempts to treat a wide range of gynecological complaints as well as to prevent pregnancy. By 1909, Ralph Richter had demonstrated the efficacy of intrauterine contraception. The medical community, however, was for the most part not interested in getting involved with fertility control (Davis, 1971).

What helped Gräfenberg's ring to be accepted by the middle-class Europeans was the association he made with science and the sex reform movement. Dugdale (1999, 2000) argues that a number of rhetorical moves and material changes associated with the Grafenberg ring helped negotiate its position as a device that supports the emancipatory movement of sex reform. To begin with, Gräfenberg dissociated his IUD from traditional stem pessaries by eliminating the stem that remains in the vagina. This physical

rearrangement of parts served to break the link between his intrauterine contraception and the sexual underworld that stem pessaries were often associated with. In addition, Gräfenberg differentiated his device from traditional contraceptives that were inserted by midwives and lay-abortionists by marketing it as a modern scientific form of contraception that is medically inserted with gynecological instruments. Another important move, according to Dugdale, was to situate the Grafenberg ring as one possible contraceptive choice among many other methods such as the diaphragms, foams, and spermicidal jellies. These rhetorical and material negotiations helped Gräfenberg successfully position his IUD as a new device that was suitable for 'respectable' middle-class women that were part of the sex-reform movement.

In a favorable social climate, the Grafenberg ring was initially welcomed as a new "scientific" contraceptive method that helped meet a socially acceptable goal. By 1940, however, the Western medical community at large condemned the use of IUDs because of their failure rates and association with pelvic infections (Onorato 1990). The Grafenburg ring never became popular in the United States. Gräfenberg himself, who had emmigrated to the U.S., was advised against using the method in the country and spent the rest of his career fitting cervical caps and diaphragms (Davis, 1971).

The 1960s: IUDs Re-emerge as a Population Control Tool

During the early 1960s, the Population Council began cultivating a new interest in the IUD as an ideal tool to control population growth in the Third World. The Council has since been the single most instrumental organization in the development and distribution of IUDs. The establishment of the Population Council in 1952 was made possible in part

by gifts from John D. Rockefeller, 3rd, whose wide travels had aroused his interest in world problems of population. Its founding mission was broadly stated as "to stimulate, encourage, promote, conduct, and support significant activities in the broad field of population" (PC Annual Report 1952-55: 5). The Council awarded research grants for reproductive physiology hoping that these basic researches would contribute to technologies of fertility regulation suitable for population control. Compounds that interfere with the reproductive process were also under study. Of particular interest, however, was research in immunology that might lead to the development of a vaccine for pregnancy, which could be easily administered to patients and last for a long time (Onorato 1990). All of these scientific studies, however, were far from being at the stage ready for clinical application. The contraceptive pill had been developed and tested a few years earlier, but the Council considered the method to be unsuitable for population control since the medication was too expensive for mass distribution and the method had to rely on the users to use it correctly and constantly. The pill, nevertheless, had set a precedent for contraceptive technologies in medical practices, providing a foundation for other contraceptive methods to be introduced into the doctors' offices. It was against such background that the Council became interested in intrauterine contraception when two favorable clinical experiences were reported from Israel and Japan in 1959 (Oppenheimer 1959; Ishihama 1959).

Even though the IUD was widely condemned by the American medical community, to those whose concerns lay in finding a solution to the impinging problem of overpopulation, the IUD appeared to be an ideal fertility control tool. Theoretically, IUDs held a great promise as a cheap, simple, and long-lasting contraceptive device that

required only one time insertion and no additional motivation or action on the part of the users. The Council's effort to rehabilitate the IUD begins with the first two research grants that it awarded in 1961 to Jack Lippes and Lazar Margulies, who invented some of the first IUDs made of flexible plastic. The Council sponsored the first international conference on the IUD in 1962, which concluded with great enthusiasm about the device's promise as a fertility control tool. In order to gain acceptance for the method from the medical community, the Council immediately orchestrated the Cooperative Statistical Program (CSP), a long-term, large-scale, multi-location clinical study aimed at establishing scientific legitimacy of the method. The Council also started providing a significant amount of funding for IUD studies through grants and its own Bio-Medical Division, which peaked at a half million dollars in 1965.[3]

By 1966, however, IUD developers were starting to feel disappointed with the performance of the IUD. Just two years earlier at the second international conference on intrauterine contraception, Bernard Berleson, then vice president of the Population Council, had declared that "this simple device can and will change the history of the world" (Berleson 1965: 13). As studies accumulated, it became clear that this simple device itself was not going to be the magic bullet solution to the "population problem." Theoretically, the IUD was an ideal contraceptive method; in practice, the method had problems such as spontaneous expulsion from the uterus and unfavorable side effects including increased bleeding and pain, which kept the number of women who retained the device much lower than was originally anticipated.[4] Frank Notestein, president of the

[3] Onorato (1990) provides details of Council's funding in tables 7.4 and 7.5.
[4] Retention rates varied among test centers around the world. "50% after two-years use" appears to be the commonly quoted (and probably realistic) retention rate.

Population Council, expressed his mixed assessment of the IUD in his President's Report:

> It is both curious and important to note that the year in which the first claims of successful reduction in birth rates could be made, thanks to the effectiveness of the IUD, was also the year in which some disillusionment with the IUD began to emerge. (PC Annual Report 1966: 18)

The Council readily admitted the discrepancy between theoretical and practical performances of the IUD, but was also quick to point out the impact that the IUD had on international family planning programs. The availability of the IUD had been an important factor in convincing leaders of developing countries that fertility control was in fact possible. The success they had in developing the intrauterine contraception "unquestionably stimulated the spread and intensification of governmental family planning programs" (PC Annual Report 1967: 14).[5]

Altogether, the 1960s established the IUD as a valid modern contraceptive method. The Cooperative Statistical Program (CSP) led by Christopher Tietze between 1963-1968 evaluated five different models of IUD involving more than 30,000 women and thirty-three researchers. Despite having had problems of many women dropping out of the trials, Tietze ultimately managed to demonstrate statistically that the cumulative pregnancy rate for long-term IUD users was 6.5 per 100 years at the end of year 6.[6] Meldrum (1996), who analyzed Tietze's statistical studies in the CSP, concludes that the

[5] The development of the IUD became a pivotal point for the organizational strategy of the Population Council as well. Before engaging in the development of the IUD, the Council provided grants and fellowship for basic and applied research, but did not see itself as a developer of contraceptive methods. The success of the IUD convinced the organization that mission-oriented research and development would enhance its efficiency towards fulfilling its mission. As a start, the Ford foundation awarded the Council $6 million in 1966 explicitly earmarked for contraceptive development. The Population Council, since then, has led the development and distribution of improved IUDs and hormonal methods including subdermal implants and vaginal rings.

[6] For the pregnancy rate cited, see Christopher Teitze, "Intrauterine Contraception: A Research Report," *Studies in Family Planning*, 1968, 36:11-12.

long-term evaluation project "established the medical legitimacy of the IUD and provided the justification for the Population Council's introduction of the device into fertility control programs around the world" (291-2).

A wide range of IUD models were invented and a number of patents were taken out during the 1960s.[7] The variety of shapes that were devised account for the different names – ring, bow, loop, and coil – by which IUDs have sometimes been referred to. Small manufacturers as well as large pharmaceutical companies were marketing their devices in the U.S., posting advertisements in medical journals.[8] The Population Council provided devices to large-scale national family planning programs and supported local manufacturing in developing countries. The Council also obtained rights to provide royalty-free licenses for the manufacture and distribution of the Lippes loop in most developing countries. The 1960s ended with the Lippes loop becoming the dominant model in family planning, owing to its comparatively good performance based on a large number of test cases and the licensing agreement that the Council made in 1965. The cumulative number of IUD users was estimated to be a quarter million between 1966 and 1973 (PC Annual Report 1973).

The 1970s and 80s: The Copper T Survives the Dalkon Shield Crisis

The discovery of the anti-fertility effect of copper opened a door to new possibilities for the IUD. In 1969, Jack Zipper, a Chilean scientist affiliated with the Population Council, studied the effects of various metals in rabbit wombs, and demonstrated that intrauterine

[7] The 1968 FDA report lists 28 intrauterine devices, 10 of which were patented.
[8] Saf-T-Coil from Julius Schmid, Inc. and Lippes Loop from Ortho Pharmaceuticals, just to name a few.

copper inhibited pregnancy in the animal (Zipper 1969). Around the same time, Howard Tatum of the Population Council had devised the Tatum T device or a T-shaped plastic IUD, which was a considerably simpler design than previous plastic models. The T-device proved to be superior to other plastic models in that it decreased expulsion rate, bleeding, and pain. The copper and the T-device were combined, namely by winding a copper wire around the vertical stem of the T, and thence the Copper T IUD was born (Zipper & Tatum 1969).

The original copper IUD was called TCu 200 because the uterus was being exposed to 200 square millimeters of copper wire. The TCu 200 test results were reported with great enthusiasm referring to its low pregnancy rate and high continuation rate. However, the effectiveness of the copper was believed to last only for about two years. Having to replace the device every other year made the Copper IUD less attractive for family planning programs. In order to increase the longevity of the device in addition to enhancing its efficacy, developers subsequently increased the amount of copper surface. The current model bears 380 square millimeters of copper and has been approved for 10-years continuous use. The pregnancy rate of TCu 380A is around 1 per 100 users per year. After TCu 220 and TCu 380 were introduced, the copper-bearing IUDs gradually replaced the inert or plastic IUDs, which were less effective and caused more pain and bleeding due to their bulkier design.

While the development of the copper IUDs scored a significant triumph, the 1970s and 80s simultaneously saw a downturn for IUDs as well. The history of the IUD cannot be told without the story of the Dalkon Shield IUD crisis. The unique features of the Dalkon Shield contributed to a significant number of incidences of pelvic

inflammatory diseases, infertility, septic abortions, and even deaths of its users during the 1970s. Stories of injured Dalkon Shield users left a strong negative image of the IUD on the American public, while the mounting lawsuits against Dalkon Shield manufacturer and producers of other devices during the 1980s drove pharmaceutical companies to discontinue marketing of IUDs in the U.S.[9] The Dalkon Shield became the symbol of irresponsible medical practice and corporate greed as well as of medical liability threats for practicing physicians.

While the story of the Dalkon Shield is relatively well known,[10] the story of the Copper T IUD has been told very little, even though it survived the adverse climate generated by the Dalkon Shield crisis and remains a widely prevalent model outside the U.S. Reviewing the activities of the Population Council clarifies why its Copper T was not affected by the situation of the domestic market. First of all, when reports of maternal deaths of Dalkon Shield users drew the attention of the medical community and federal agency to safety issues of the IUD, the copper-bearing IUDs were already being clinically tested under the Council's leadership on a large scale around the world. Secondly, there was already a wide range of acceptance of the contraceptive method among family planning programs in the developing world, which welcomed the replacement of older plastic models with an improved device. Thirdly, the Population Council scientists proactively conducted IUD safety studies, including ones that suggested that the Dalkon Shield IUD may be uniquely dangerous because of the material

[9] The Saf-T-Coil and Lippes loop providers stopped producing them during the mid-1980s as more doctors switched to copper IUDs. G.D. Searle and Ortho Pharmaceuticals subsequently withdrew their copper IUDs (Cu 7 and TCu 200) because of mounting legal expenses (Population Reports B-5 1988; Segal 2002).
[10] Not only has the Dalkon Shield received a lot of media coverage, at least 6 monographs have been published on the topic: see Mintz (1985), Perry and Dawson (1985), Bacigal (1990), Grant (1992), Hicks (1994), and Hawkins (1997).

used for its cervical thread or tail. Most IUD models have a tail that extends from the device that sits inside the uterus into the vagina. Howard Tatum and colleagues compared the tails of a number of IUD models and showed that the thread used on the Dalkon Shield may be responsible for transmitting bacteria between its multiple filaments from the lower genital tract into the uterus.

The Council stood strong behind its own product. In a way, their overseas programs were not affected by the domestic IUD crisis because the Dalkon Shield was never a part of the Council's projects.[11] The Copper T IUD has become widely prevalent around the world serving the needs for fertility control. In the U.S., a former head of Ortho Canada, who had had experience marketing the IUD, licensed the Copper T 380A from the Population Council and established GynoPharma, a small one-product company dedicated the product. Under the brand name ParaGard, IUDs were made available again to American users in 1988 two years after other copper IUDs were withdrawn from the market, although it was at a very small scale due to the company's limited distribution network.

The 1990s and 2000s: Turning the Tide

During the last decade, the tide has turned somewhat favorably for IUDs in the U.S. while the method's weight has decreased in international family planning. With the negative memory of the Dalkon Shield crisis fading and new hormone-releasing IUD appearing on the market, the medical community and women are beginning to reaccept

[11] The overseas users, however, were not unaffected by the risks associated with the Dalkon Shield. When the company expected decline in domestic sales, A. H. Robins offered USAID a 48% discount on bulk packages of unsterilized Shields. By the time USAID recalled the Shield in 1975, 440,000 devices had already been distributed through USAID (Hartman 1995).

the method in the U.S. Meanwhile the importance that IUDs hold in family planning programs decreased as the Population Council developed new contraceptive methods including the long-term implant methods – Norplant and Jadelle.

The new levonorgestrel-releasing IUD, commonly called by its brand name Mirena, is the latest IUD developed by the Population Council. The idea of adding the progestin hormone to the IUD to increase efficacy dates back to 1970. A hormone-releasing IUD called Progestasert has been marketed in the U.S. by a California company since 1976. The product only lasts for one year before it must be replaced and hence never received much support as a family planning method. During the 1970s the Population Council obtained rights to conduct research on a highly potent progestin called levonorgestrel for the development of a contraceptive implant, which later became the Norplant. The new synthesized hormone only required a small dose to be released into the body to exert contraceptive effect, allowing contraceptive devices that carried them to last longer than did the previously available hormones. Tappani Luukkainen, a Finnish member of the Population Council's International Committee for Contraception Research (ICCR) came up with the idea to using the potent hormone in an IUD anticipating long-term effects, enhanced contraceptive efficacy, decreased bleeding, and better protection from pelvic inflammatory diseases. Clinical studies of the levonorgestrel-releasing IUD started in 1978 and the method was introduced in several countries during the 1990s. The United States Food and Drug Administration approved the method in 2000 for 5-year consecutive use, and marketing of the device started the following year through Berlex Laboratories, a subsidiary of Schering AG, under the brand name Mirena. In 1995, a few years prior to the release of Mirena, the Copper T

ParaGard was acquired by Ortho-McNeil Pharmaceuticals, which has a much wider marketing ability than GynoPharma. It appears that gradually the medical community is showing positive interest in the method, as part of a mix of contraceptive options that are offered to patients based on specific needs.

On the international scene, the Copper IUD continues to be important, but has lost its position as the only long-acting contraceptive option after the introduction of Norplant and Depo-Provera, the contraceptive injection. Oral contraceptives are also offered in developing countries as a part of the mix of contraceptive methods. The new hormone-releasing IUD is being marketed almost exclusively in industrialized countries and had little impact on international family planning due to its cost, which is much higher than the copper-releasing models. The Population Council has put considerable effort into promoting the Norplant in developing countries as the alternative long-term contraceptive method to Copper-T IUDs. The only developing country in which the Council has actively supported a program to promote the new hormone-releasing IUD is Brazil, where early Norplant testing generated a political controversy and has since been regarded unacceptable.

Organization of the Dissertation

The four chapters that follow the introduction explore domains of negotiation in which the construction and reconstruction of the IUD took place. The domains in question are: global population politics, American commercial circumstances, American antiabortion movement, and scientific research. The final chapter addresses women's experiences with IUDs. It relies on interviews and ethnographies conducted by feminist scholars to

explore the implications that the device has had on reproductive choices of women around the world.

Chapters two and three illustrate the historical transformation of the representations of the IUD as they are produced through prevailing social and political interests. Chapter two approaches the IUD from the perspective that it has originated, and in many respects still remains, as a tool to socially control undesirable births. It investigates the transformation of the device from a "population control tool" to a "contraceptive method of choice" in family planning programs. This chapter also outlines the social history of the IUD from the side of its global application.

Chapter three focuses exclusively on the United States and approaches the IUD from the perspective that it is reemerging as a contraceptive choice for American women. The chapter outlines the social history of the IUD from the point of view of its rejection and acceptance as a consumer product within the United States. It investigates how the device regained its limited acceptance as an alternative contraceptive method a few decades after it was deemed unsafe and removed from the American market. Chapters two and three both cover the time period 1960 to the present. Naturally, the stories are intertwined with one another. These chapters together provide a comprehensive social and historical background for chapter five, which discusses the historical transformation of the scientific investigation of the IUD.

Chapter four focuses on the relationship between antiabortion politics and scientific representations of the mechanism of the IUD. It illustrates that what appears to be a scientific debate about how the IUD prevents pregnancy is deeply linked to the struggle between physicians who support the IUD as a contraceptive method and those

who regard it as an abortive method. This chapter incorporates both the socio-political background and the scientific discourse in one analysis and demonstrates the intricate connection between the science and its social context.

Chapter five explores the scientific representations of IUD-ed bodies at the intersection of socio-political and medico-scientific imaginations. The chapter provides contextualized analyses of the scientific development of the IUD in a similar manner to chapter four. While chapter four examines the socio-political background simultaneously as the scientific development, chapter five relies on the social backgrounds laid out in chapter two and three in order to contextualize the scientific practice. In this chapter, I investigate three types of body/technology relationships that have emerged out of the scientific discourses around the IUD, namely ones that concern the efficacy, safety, and side-effects of the method. The three analyses also correspond to the establishment of three dominant IUD models, namely the Lippes Loop, the Copper-T, and the Mirena IUDs. The first analysis demonstrates that politics of population control was projected on the ways in which scientists imagined the relationship between the IUD and the body. The second analysis concerns how scientists negotiated a "safe" relationship between the Copper-T and the bodies of its users after the Dalkon Shield crisis. The final analysis examines the construction and reconstruction of the bleeding bodies of IUD users and how the role of hormone-releasing IUDs changed from alleviating bleeding in one class of users to another.

Chapter six explores the different ways in which women around the world have negotiated reproductive choice by using or rejecting the IUD. The chapter demonstrates that women's reproductive struggles are situated within their local social and cultural

settings. The role of the contraceptive technology is constantly renegotiated within the prevailing reproductive politics.

The concluding chapter will end with an exploration of the relationship between body and technology that emerge from the discussions put forth in the dissertation

Chapter Two: The IUD and the Global Population Politics

The Social Control of Fertility of "Others"

A number of feminist scholars have pointed out that the revival of the IUD during the 1960s was tightly coupled with the population control ideology.[12] The desire to stem global population growth inspired scientists and philanthropists to develop this contraceptive method and insert IUDs into millions of women whom they regarded as having undesirable births. Feminist scholars have criticized IUD developers' disregard for the wellbeing of women, who might suffer accidental pregnancies, side effects, or health risks such as infection, infertility, and deaths as a result of IUD use, in the interest of affecting aggregate birth rates. They have also objected to the ways in which overzealous governments and local birth control officials mobilized the IUD coercively in order to curtail fertility rates. The IUD has earned a bad name for its association with social control of fertility, particularly in its early days. Yet, the method has survived these criticisms, continued to be widely disseminated, and is the most widely used contraceptive in the developing world today if China is included. The acceptability of the IUD has been renegotiated over the years as the international politics of social control over undesirable pregnancies has been transformed. This chapter traces the transformation of the relationship between the IUD and the politics of social control over fertility, and provides a multi-dimensional view of where the technology stands today. The first section revisits the construction of the IUD as a panacea for population control during the 1960s. The second section examines how this kind of characterization

[12] Susan Onorato (1990), Annie Dugdale (2000), Andrea Tone (1999), Betsy Hartmann (1995), to name a few.

subsides as IUDs encounter practical problems and as challenges against the population control ideology grow. The third section describes how the IUD has been repositioned in the new international population discourse as a neutral contraceptive choice for women with "need" for contraception. The final section revisits the potential abusive use of the device in developing countries and the application of long-acting contraceptive methods to prevent individual undesirable births in the U.S.

"Contraceptive Technology for the Nation" and the Unmotivated Mass Population

Feminist writers have given well-developed accounts and critiques of how the IUD was conceived and developed as a population control tool ignoring women's wellbeing. Susan Onorato (1990), through archival research, provides detailed accounts of how the Population Council in the 1960s regarded the IUD as an ideal method for stemming birth rates in underdeveloped countries. Betsy Hartmann (1995) criticizes the aggressive IUD campaigns and involuntary insertions that took place in several developing countries and the continuing deployment of the method in underdeveloped areas as imposing health risks on women. Andrea Tone (1999) contends that the design of the device itself is intrinsically violent to women and that assumptions made about the passivity of women allowed developers to freely disregard their wellbeing. However, Anni Dugdale (2000) argues that the IUD was socially constructed as a population control tool during the 1960s; this she argues against the idea that the device is inherently oppressive. In her analysis, the Grafenberg ring IUD, which was popularized during the 1930s, was greeted as a tool for sexual liberation of women. When the IUD reappeared during the 1960s,

however, the IUD was reconfigured into what she calls a "population- control-IUD" and "transformed into a mass fertility control device" (Dugdale 2000: 170). I paraphrase some of the discussions of these scholars at the same time I follow Dugdale's lead and treat the device as a socially constructed technology in my own analysis. This section focuses on how population control advocates construed the IUD as a "birth control for a nation."

The greatest impetus for the Population Council's effort in reviving the IUD during the 1960s was the technology's suitability for population control. The Population Council, since its inception in 1952, had envisioned that scientific research of reproductive mechanisms would lead to more efficient means of fertility control for developing countries. There was an overwhelming opinion within the Council that the barrier methods that were available during the 1950s were "not suitable means of population control on a mass scale" (Onorato 1990: 246). Meanwhile, the Council's effort to develop a contraceptive vaccine that would allow easy application and long-lasting effectiveness was still in its infancy. Hence, when favorable experiences with IUD use were reported in 1959, population control advocates received the news with great enthusiasm. They believed that they had found the contraceptive method that they were seeking, namely one that "did not require 'the birth control habit,' that could be used in a population without high motivation to practice contraception" (Reed 1978: 427). The Population Council regarded the IUD as "most appropriate for "poverty stricken or under-developed lands" because it could be manufactured for pennies, it was largely independent of the patient's motivation and intelligence, and it required no maintenance" (Onorato 1990: 247). The Council immediately embarked on promoting

the development of the IUD by providing grants to researchers and organizing international conferences to share experiences among physicians who experimented with the method.

Population control advocates placed a great deal of expectation on the IUD as the solution to overpopulation. Alan Guttmacher, former president of International Planned Parenthood Federation and an instrumental supporter of IUD development, attributed the reason the restraint of population growth was moving slowly to the inadequacy of existing contraceptive methods. "The methods we offer are Western methods," he declared, "methods poorly suited to their culture and to the control of mass population growth" (Tietze and Lewit 1962: 7). He, along with most IUD proponents, rejected the contraceptive pill that had just emerged as a scientific birth control method as "too commercial, too expensive, and also user-dependent" (Meldrum 1996: 283) to be distributed to developing countries. The assumption was not only that the pill was too costly to subsidize for mass distribution, but women in developing countries could not be trusted with the method. The pill could be discontinued at the user's will; in contrast, once inserted, the IUD required medical intervention to discontinue its use. The Population Council repeatedly emphasized the provider-controlled aspect of the IUD as the benefit of the method (Onorato 1990). Christopher Tietze, who led the large-scale collaborative clinical studies of IUDs during the 1960s, recalls in his 1971 interview the enthusiasm that initially surrounded the IUD:

> There was such a feeling of urgency among professional people, not among the masses, but something had to be done. And this was something that you could do to the people rather than something people could do for themselves. So it made it very attractive to the doers (Reed 1983: 307).

IUD proponents pushed the method deeming it most advantageous for controlling the fertility of people of the undeveloped world, who were poor and lacked sustained motivation. To sum up with Guttmacher's now often quoted statement, "no contraceptive could be cheaper, and also once the damn thing is in the patient cannot change her mind."[13]

Guttmacher positioned the IUD as "birth control for a nation," clearly distinguishing it from "birth control for the individual" or "Western methods" (Tietze and Lewit 1962: 7). Two discrete goals were advanced by contraceptive methods: "birth control for the individual" suggested meeting individual reproductive choice, whereas "birth control for a nation" implied that a social goal, namely slowing population growth, was in pursuit. Contraceptive users were divided by the two discrete goals into two different groups or class. On the one hand, there were users categorized as individual, Western, upper or middle-class, private patients. On the other hand, there were those represented as the mass, Third World, under-privileged, clinic patients. Making these kinds of distinctions may not be politically appropriate today; during the early 1960s, however, contraceptive developers often made uninhibited references to users' class differences out of deep prejudices against the poor and non-whites (Tone 1999).

Standards of contraceptive performance, for instance, were applied unequally. It was assumed that Western, upper-middle-class, private patient had to be granted high reliability from a contraceptive method, while individual needs of "the mass" or Third World, under-privileged, clinic patients were not considered critical in light of achieving

[13] Guttmacher's statement has now been quoted at least by as many works as Watkins (1998: 70), Tone (1999: 384-385), Halfon (2000: #?), Takeshita (2004: 258).

the goal of population control. While advocating the use of IUD over the pill for less developed nations, Alan Guttmacher stated:

> The big difference is that the IUD's are not as effective as the pill in preventing conception. If Mrs. Astorbilt, or Mrs. Searle or Mrs. Guttmacher gets pregnant while wearing an IUD, there is quite a stink…. However, if you reduce the birth rate of an unprotected segment of the Korean, Pakistanian, or Indian population… this becomes an accomplishment to celebrate. (circa 1958. Quoted by Watkins 1998: 70)

Guttmacher, while most vocal and influential, was not alone in making clear class distinctions among contraceptive users. At least one of the participants of the first international conference on the intrauterine device explicitly voiced the opinion that infection and infertility suffered by IUD users are not very serious for the world in general. Though not entirely without hesitation, Robert Willson declared:

> Perhaps the individual patient is expendable in the general scheme of things if the infection she acquires is sterilizing but not lethal… if 60 or 70 per cent of patients can tolerate the device and use it and like it, and don't get pregnant, then we are that much ahead (Willson quoted inTietze and Lewit 1962: 124).

The double standard prevailed when it came to defining acceptability of contraceptive methods. The pill, in general, had the lowest pregnancy rate, and hence was considered appropriate for individual users who deserved a highly reliable method to take control of their own fertility. The IUD, then considered not as effective as the pill, but guaranteed long-term use by many of its users, was pushed for users classified as "the mass" since the method promised overall fertility decline even though individuals may suffer accidental pregnancies. The pill was originally conceived by its developer, Gregory Pincus, as a tool to stem global population growth, but was quickly reconceived by its protagonist, Margaret Sanger, as a means for women to take charge of their own fertility. Although, the pill was also expected to help prevent population explosion, it escaped the kind of suspicions directed at the IUD because it allowed the user to maintain control over discontinuation of the method. In addition, it was relatively more reliable at

the time; as a result, it earned the status of a middle-class contraceptive method. In contrast, the IUD, due to its initial mediocre performance and the provider-controlled aspect, came to be viewed as a method for the under-class.[14]

IUD protagonists made explicit remarks about how the pill is not "the answer for the poor or the uneducated." As Guttmacher put it "They are too expensive for the budgets that deal in pennies a day [and] require intelligence and instruction" (Guttmacher 1960, quoted in Tone 1999: 380). Hugh Davis gave a clearly racist, classist, and eugenicist statement:

> It is especially tragic that for the individual who needs birth control the most – the poor, the disadvantaged, and the ghetto-dwelling black – the oral contraceptives carry a particularly high hazard of pregnancy as compared with methods requiring less motivation … [I]t is the suburban middle-class woman who has become the chronic user of the oral contraceptives in the United States in the past decade, getting her prescription renewed month after month and year after year without missing a single tablet. Therein, in my opinion, lies the real hazard of the presently available oral contraceptives (Davis quoted in Grant 1992: 31)

Class differences between contraceptive users were also articulated by the ways in which women or couples were represented. The upper-middle class private patients were considered as reliable, respectable, and motivated users, whether they chose to use the pills, the IUD, or any other contraceptive method. The mass users targeted by IUD developers were represented as unreliable women that this device had to be given to, and for whom higher rates of accidental pregnancy and side-effects were considered tolerable (Tone 1999). Dugdale (2000), who observed the difference between how users of the Grafenberg ring IUD and the population-control-IUD were represented, points out that the realignment of the IUD as an effective tool for Third World fertility control was accompanied by the reconstruction of its users as "unmotivated women." The claimed

[14] While the contraceptives methods were often portrayed in this way, both methods were actually used by women of all classes.

advantage of the IUD, namely that the method only requires a one time acceptance of the device and no continuous involvement by the user, emerged hand in hand with the notion that certain populations of women had to be managed.

Reproductive norms, approaches to fertility control, and meanings assigned to the IUD reinforced one another to formulate a social arrangement that supported population control. The idea that Third World reproduction needed to be limited to avoid overpopulation was accompanied by a conviction that fertility rate should be controlled by efficient scientific means and international oversight. The IUD was constructed as an ideal tool for ensuring user compliance, and the availability of the technology fueled the idea that population management is an attainable goal. Construction of the users as women who needed to be served by a long-lasting method gave legitimacy to both the population control ideology and the IUD as a controlling device. In summary, the acceptability of the IUD was negotiated during the early 1960s by population control advocates through the co-production of users, technology, and social order, namely "the unmotivated mass," "contraceptive method for a nation," and the notion that population growth is manageable through technical intervention.

"Birth Control for Women" in International Population Politics

It would be oversimplifying, however, to limit the understanding of the IUD to an oppressive method that is associated with the population control ideology. The population control movement itself is not a stable set of ideas and methods in the first place. Its discourse and practice have transformed over time through negotiations over reproductive norms, appropriate means of fertility control, and the significance of such

effort to nations and women. Furthermore, distinctions between applications of contraceptives to women's emancipation as opposed to their oppression may be not so clear at all times as critics suggest.

Linda Gordon, historian of reproductive rights, wants to distinguish "birth control" and "population control" movements from each other. She uses the phrase "birth control" to signify the political struggle for self-determination of women, while she defines "population control" as the targeting of "poor, working-class, minority and Third World people, in the United States and abroad, in the form of prescriptive, even coercive, programs urging birth-rate reduction" (Gordon 1990: xviii). Critics of population control often adopt this dichotomy and anchor their critique in the treatment of particular sets of women as a "mass" without reproductive agencies of their own. Gordon contends that although by the 1960s the terms "birth control," "family planning," and "population control" had become interchangeable in the U.S., the birth control and population control movements must be clearly distinguished as separate political agendas. The history of the two movements, however, is not so clearly separable: the two have formed alliances in certain contexts, while in other situations, the tension elevated between conflicting goals.

The idea that decreasing fertility is a solution to poverty, which is at the core of the argument that population control benefits developing countries, has existed since the initial days of early twentieth century American birth control movement. The movement's leader, Margaret Sanger, advocated reproductive self-determination of all women and fought for women's rights to obtain contraceptive methods. Simultaneously, she believed that the number of children had to be curtailed in order for poor women and

men to overcome poverty. Since upper-class women had some access to contraceptives from their private physicians, Sanger focused particularly on helping poor women acquire contraceptives.[15] Decreasing fertility of the poor and helping women from unwanted pregnancy, therefore, were pursued as compatible goals. A similar argument that family planning is for the benefit of poor people in developing countries continues to be recited today as justification for supporting family planning programs overseas. While concerns for the wellbeing of underprivileged populations is legitimate, too much focus on fertility rate as the cause of and solution to poverty hides fundamental sources of perpetuating inequity, such as systemic discriminations and socio-economic and political power differentials. Moreover, fertility reduction efforts can be mobilized by people whose purpose is precisely to conserve their own power and status.

In fact, during Sanger's times, her effort to empower poor women with giving them access to contraception found alliance with the eugenics movement, which supported the idea of limiting fertility of those viewed as undesirable. Sanger herself later shifted away from protecting women's reproductive control and moved towards embracing "eugenicist and elitist view of the poor, and adopted a top-down approach to the delivery of services" and "paved the way for the coming of population control" (Hartmann 1995: 101). The mid-century population control movement operated in a conceptual framework completely divorced from women's call for reproductive self-determination. It was openly racist and classist as well, with population control advocates justifying their support for provider-controlled contraceptive methods by arguing that the fertility of the poor and uneducated must be monitored since they are

[15] Powderly, Kathleen (1995) "Contraceptive Policy and Ethics: Illustrations from American History" *Hastings Center Report*, 25(1): S9-S11. Reed (1983), Hartmann (1995), and Gordon (1990) also provides background on early reproductive movements in the U.S.

incapable of the task themselves. It was against this background that the IUD emerged with the expectation that it would put an end to global population explosion by eliminating undesirable births.

Relatively soon after the initial enthusiastic take off of the IUD during the 1960s, however, the rhetoric that stresses the provider-control aspect of the IUD as a favorable solution for the population problem wore off as some of the basic assumptions that upheld the population control ideology transformed. When the Population Council started working on the IUD, a relatively straightforward and uncomplicated proposition that rapid population growth threatens the economic development of the developing world provided the rationale for population management. The Council conceptualized the population problem as something that first had to be recognized by developing country governments, for whom the organization would provide assistance in measuring demographic trends and delivering fertility control methods. The Council, armed with the IUD as well as programs ready to train local demographers, imagined itself as an agent that helped provide a technical solution to a technical problem. As the issue of population matured, however, the Council had to revisit its approach.

By 1973, at least five different positions towards the population problem had emerged as classified by Bernard Berleson, president of the Population Council (Population Council 1973). The first, the Zero Population Growth perspective, deems population growth as a major crisis facing humankind and population stabilization as an urgent requirement. The second position regards population as a substantial problem that warrants attention in its own rights, but not as the single most important problem. The third group believes that population is a non-problem because social and economic

development will automatically induce fertility rate decline. The fourth view sustains that population growth is positively good for supporting economic/political/military power. The last stance criticizes population reduction efforts as a neo-colonialist approach by the rich countries to hold down the poor countries in their own selfish interest. A little over a decade after the initiation of the development of modern IUDs, the population management issue, which had originally been conceived as a technical matter, had entered the political realm.

During the mid-70s, the Population Council went under a kind of identity crisis. On the one hand, the World Population Conference at Bucharest in 1974 stimulated interest in family planning and other population programs in the developing world, which resulted in the increasing funding requests to donor agencies. On the other hand, there were doubts in some sectors of the donor community as to the ultimate effectiveness and acceptability, among developing nations, of such programs. Berleson explains that as population interest developed during the 60s and 70s, "counter-positions" and "backlash" signals had naturally developed against what had been perceived as "the panacea of population control" (Population Council 1973: 26). Various positions in favor of broad social and economic development with demographic adjustment merely a corollary or consequence emerged during this time. Berleson lists some explanations offered by these oppositions including:

> The "overselling" of population, "overstress" on family planning against maternal and child health or public health, perceived funding disparities between population and other fields, perception of the emphasis on population as a spurious effort "to buy development cheaply" or as "a way out" for the rich countries both politically and economically, the belief that from the environmental standpoint the population of the affluent is the real threat, the response of socialist countries to the proposals of capitalist countries, suspicion in the poor countries or non-white countries as to the motivations of the rich and white supporters of population limitation (Population Council 1973: 26).

While Berleson perceived these challenges as part of a positive development of the field of population studies, he also understood that his organization needed to make a transition. Population issues were no longer only analyzed by scientists, but were now debated by policy makers and in public forums. The Council could no longer follow a straightforward principle, or treat population management as a technical matter solved by scientific methods and international oversight, but had to develop programs that recognized that the population problem cannot be tackled in isolation from the social and economic developments.

The transformation of the field of population studies from a straightforward technical problem to a larger political issue practically displaced the original rhetoric that supported the deployment of the IUD as a technological fix for population control. The IUD, nevertheless, remained central to the activities of the Council, which continued to emphasize the availability of contraceptive methods as a vital means to eliminate unwanted births. The organization has been the major force behind the development and dissemination of the IUD during the last 40 years. The technology itself survived partly due to the lack of other viable contraceptive options.[16] The technology also had a momentum that helped maintain its centrality. The IUD had the largest clinical testing data collected; had accumulated programmatic experiences, upon which improvements were made in their delivery services; medical experiments had suggested ways in which the device could be physically improved; and the device still had the advantage over pills and barrier methods that required continuous supplies difficult to secure in remote areas.

[16] It took another decade before the Population Council was able to make the contraceptive implant, Norplant, available. The contraceptive injection, Depo-Provera, became available during the 1970s, but not approved by the FDA until the 1990s. It is only during the last decade that new methods such as the contraceptive vaginal ring and patches became available.

Responses of IUD users perhaps had a more direct impact on how the Council repositioned the IUD than did the transformation of the general climate surrounding the population issue. By 1966, the Council had come to the realization that some women could not or would not use the IUD, and that the method was far from becoming the magic bullet that will solve fertility problems for the majority of women. The discrepancy between the original expectation and immediate experience was explained as a result of having focused too much on "the ideal exercise" and "too little attention paid to actual practices" (Population Council 1966: 19). The Council reckoned that women who are not informed of the heavy bleeding and pain that might occur during the first few months tend to discontinue the method and spread "adverse gossips" (ibid). This recognition that more attention should be paid to women's satisfaction, or at least provide more information to the women about the contraceptive method they received, was motivated by the need to prevent the method from being rejected rather than by the will to protect users' rights. Nor did it lead to a reevaluation of user-controlled methods, which would allow users to freely discontinue the method should discomfort persisted. Nevertheless, a step was made towards acknowledging some agency in women who may reject the method. It also led to efforts by the Council to improve IUDs and their delivery services to enhance user acceptance.

Forcing IUDs on women was not only an unrealistic (if not unacceptable) way to spread fertility control, but also proved to be unnecessary. The Council was pleasantly surprised to learn that people of developing countries are "quite willing to use modern contraceptives if given information" (Population Council 1967:xx). This realization led the organization to start encouraging the use of other methods rather than relying entirely

on the IUD as well as to advance the argument that more research that would diversify available contraceptive methods is vital in increasing the number of people practicing contraception. Contraceptive research has been one of the main missions and major accomplishments of the organization to date.

As International women's movements heightened with the 1975 International Women's Conference in Mexico City, the Council expanded its understanding of the relationship between birth control services and women. The position that universal and convenient access to birth control services is vital for lowering high fertility rates and managing rapid population growth was still maintained. At the same time, however, the Council added that birth control service is a significant factor in enhancing women's status, arguing that it facilitates:

> entrance of women into a broader range of social roles by eliminating unwanted fertility and contributing to the improvement of maternal (and infant/child) health and the status of women at the familial level. (Population Council 1975: 86)

Furthermore, the Council articulated a reciprocal relationship between women's status and family planning by stating that:

> Increasing status and a broader spectrum of economic and non-economic opportunities for women are in turn likely to increase demand for and utilization of family planning service. (ibid)

This rhetorical move reconfigured the understanding of those whom birth control technologies benefit. The Council moved away from the pitch that IUDs serve the nation by assuring that birth rates are kept low and adopted a narrative that emphasize the role of birth control services in helping women.

This rhetorical shift away from "birth control for the nation" to "birth control for women" makes it appear as if women were no longer portrayed as objects of control. Women's "improved status," however, was still narrowly linked to eliminating unwanted

fertility rather than pushing towards women's overall social and political empowerment. In other words, an agenda closely tied to a national goal was set for women through limiting its scope to their adherence to family planning. This merging of interest between promoting family planning acceptance and advancing women's welfare remain central to the Council's operation.[17]

IUD as "Contraceptive Choice" in the Women-Centered Approach to Family Planning

Uncoupling of fertility issues and women's empowerment has been attempted, but with limited success. During the 1980s and 90s, women's health activists challenged population policies that concentrated on reducing aggregate birth rates and employed strict measures to accept contraception at the expense of women's health and wellbeing. They also worked on developing concepts that redefine family planning in light of women's rights rather than birthrates and contraceptive prevalence. The 1994 International Conference on Population and Development (ICPD) in Cairo provided a stage for women's rights activists to attempt a drastic reversal of priorities. In preparation for the 1994 conference, the International Women's Health Coalition (IWHC) published *Population Policies Reconsidered: Health, Empowerment, and Rights* (Sen, et al., 1994). The collection of contributions attempted to articulate new directions for population policies based upon the goals of health, empowerment, and human rights. Issues brought up in the IWHC publication such as 'human rights and reproductive

[17] During the 80s, the Council developed more sophisticated concepts such as "quality of care." The concept envisions improving services offered through family planning while at the same expecting that such improvement will lead to greater sustained contraceptive use and faster falls in fertility.

rights," "women's empowerment," "reproductive and sexual health," and "women-centered approach to fertility control" became central concepts in the Program of Action documented in the Cairo meeting. Efforts by women's health activists bore fruit to the extent the Cairo Program of Action was endorsed as the "consensus" on a new framework for a women-centered approach to population policy by a diverse group of participants, including population control constituencies, women's rights activists, and the Catholic Church.

While the "consensus" was a significant rhetorical accomplishment, evaluation of its true nature is complicated and divided. Hartmann (1995) believes that the population control establishment had already impressed upon developing country governments during the 1970s and 80s that population control and development were inseparable problems and that rapid population growth is both the cause and effect of poverty. In preparation for the ICPD, population control advocates allied with environmentalists and campaigned that overpopulation caused environmental degradation.[18] At the conference itself, the Vatican's opposition to any reference to abortion and efforts to weaken passages on reproductive and sexual rights had the effect of making the population control constituencies appear progressive. The fight over abortion rights against the Vatican's opposition drew the conference's attention away from the point that women's rights advocates had hoped to discuss, namely that fundamental inequity and economic and political realities were a major cause of infringement on reproductive rights.

[18] Hatmann (1995) details this process. Here I am not suggesting the Population Council approached the conference this way. Organizations such as Zero Population Growth and Pew Charitables, which are fundamentally committed to the view that overpopulation is the root of all other global problems and that curving population growth must be the priority, formed alliances with mainstream environmental groups such as the National Audubon Societh, the National Wildlife Federation, and the Sierra Club.

As a result, even though the Program of Action contains many strong articulations of women's rights perspectives, the agreement fell short of pushing for fundamental changes to overthrow social inequities that hinder women's rights. Instead, the Cairo consensus settled at the middle-ground where it can incorporate varying objectives of different actors and agendas. The Program of Action indeed reflects the pressure applied by women's health activists and has reframed population policies under women's rights to health and self-determination. At the same time, however, key concepts such as women's empowerment, unmet need, and contraceptive choice left room for interpretation that allowed population policy makers and family planning programs officers to apply the consensus to existing programs without extensive practical changes. In a sense, the consensus had the effect of resolving the tension between population control and women's rights advocates through agreeing on a common language, while maintaining old practices.

"Women's empowerment," for instance, is a concept that, at least rhetorically, became an accepted norm at the conference. "No set of actors," however, "has been able to capture and stabilize its meaning" (Halfon 2000:103). The concept originated from a radical critique of development practice that perpetuated existing power structures. In the original context, women's empowerment signified a collective movement of women's struggles to demand the "transformation of structures of subordination through radical changes in law, property rights, and other institutions that reinforce and perpetuate male domination" (Sen and Grown, 1985: 129, quoted by Halfon, 2000: 107). In this sense, empowerment was a political goal in itself, and a precondition for guaranteeing women's

reproductive rights. Access to reproductive choice would become possible once women controlled many aspects of their lives, but not vice versa.

When women's empowerment was read in the context of population and development, however, the term was interpreted for policy-making purposes and it began to focus somewhat narrowly on reproductive practices. Often, a gesture is made to suggest that a specific focus on reproductive rights and health contributes to the broader goal of empowerment. Halfon (2000) quotes a program officer, who stated, "with reproductive freedom and choice come opportunities for women to participate in the affairs of family and society that are otherwise closed off to them" (111). The speaker, making his statements during the late 1990s, still speaks a 1970s lingo, narrowly articulating women's status in relationship to fertility control and implying that reproductive choice leads to empowerment rather than the other way around. The term "women's empowerment" lost its original intention to be a political movement to challenge existing power differentials when it was applied to projects related to family planning and population policy. Halfon (2000) observes that empowerment programs now "primarily focus on contraceptives development and delivery and reproductive health-care, with some emphasis on education and job opportunities and challenging legal or family structures" (127). The term "women's empowerment" resulted in being employed flexibly by parties with various agendas creating the appearance to have a consensus, while employing the concept in divergent ways.

"Unmet need" is another concept that has held together various constituencies. Only this time, the term was not so open to flexible appropriation because of its deep connection with established practices. Halfon (2000) contends that because it already

had a long history, the concept of "unmet need" was able to mediate between the population establishment and women's rights activists and to serve as an "important bridge between the old regime and the women's empowerment regime" (182).

The concept "unmet need" originated in a demographic technique of the 1970s employed to quantify the need for contraceptives so as to justify the distribution of contraceptives. Women who expressed a desire to limit childbirth but were not using contraceptives were counted as women with unmet need. Demographic surveys were strongly driven by the motivation to count women whose pregnancies might be prevented. Hence, at least initially, demographers tended to count all women who expressed any wish to have fewer pregnancies as women with unmet need even when they had expressed no desire to use contraceptives or intended to leave fertility to God's will.[19] Over the years, demographers, family planning programmers, and women's health advocates have made various suggestions to revise the concept so that it would more accurately reflect "need," including eliminating factors that prevent women's access to contraceptive methods (Halfon 2000).

"Unmet need," in the post-Cairo population discourse, became a concept that holds together multiple actors and agendas. Rather than resisting the concept as driven by demographic objectives, women's health activists attempted to bridge the gap between population control and women's health by expanding the notion of "need," including the needs of unmarried women and the needs for a broader range of services including infertility services, abortion services, prevention of STDs, and related reproductive health

[19] See Halfon (2000) for details on how unmet need was defined in the 1975-76 Bangladesh Fertility Survey carried under the World Fertility Survey program. Using interview transcripts from the survey, he presents examples of women who fit the category of unmet need in terms of theirr reproductive desires, but explicitly state that they will not use contraceptives and/or invoke the will of God.

problems. By applying "unmet need" to satisfying a variety of women's individual needs, the term conceptually reconciled individual rights with achieving social objectives. However, as Halfon (2000) points out, even though attempts have been made to use "unmet need" expansively as the surrogate concept for broader need, because it has been strongly associated with the narrow practice of contraceptive delivery in the past, such a practice is likely to continue to take precedence.

Increasing the variety of contraceptive offerings has been expressed as one of the needs that must be fulfilled in order for family planning to be successful in developing countries.[20] The concept of "contraceptive choice" also brought together the interests of people focusing on the management of population growth and women's rights activists. From the perspective of population control, increasing the variety of contraceptives enhances the chance of contraceptive acceptance.[21] While not all women's health activists endorse all types of contraceptive methods,[22] from the perspective of women's health and rights, a variety in the choice of contraceptives is to be welcomed provided that the methods are safe, health care services are adequate, and users are guaranteed to have the method removed upon request. The idea that there is a "need" for a variety of contraceptives situates contraceptive methods neatly into the discourse of unmet need and the related idea that women are empowered by having their needs met. Within this

[20] For example, the Population Council states that the organization is "testing new approaches to safe, effective, and reversible contraception and thus expanding the choices that may be available to future generations" (http://www.popcouncil.org). UNFPA raises "failure to offer a wide selection of methods" as one of the reasons that contraceptive services are not being utilized by women in developing countries (http://www.unfpa.org).

[21] See Oudshoorn (1996) for a discussion on the "cafeteria" approach to contraceptive distribution.

[22] Feminist perspectives on contraceptives vary. Due to concerns over safety and abuse, some women's health activists reject certain methods such as implants, injections, contraceptive immunology, and the IUD.

context, all contraceptives are understood as neutrally enabling tools for women with a desire to limit fertility.

The post-Cairo population discourse provided a framework for IUD developers to reposition the IUD as one of the valid choices for contraceptive users. Population Reports (1995) states: "family planning programs should offer IUDs along with other methods of contraception and help clients choose the methods that best suit them"(25). The aspect of the device that hands over control to the provider is rephrased as a provider-dependent method that requires trained staff to insert and remove the device. The report addresses the importance of ensuring the option to remove the device whenever and for whatever reason the woman desires. The IUD is now one of the methods offered to meet the need for a variety of contraceptive choices – sitting well with the new discourse of women-centered fertility control. The tension between population control and women's wellbeing that the IUD has invoked in the past is reconciled by this new positioning.

Simultaneously, IUD users are reconfigured to coincide with the new characterization of the device. At the onset, IUD users were constructed as the unmotivated mass that needed servicing by a contraceptive method that does not require users' continuous involvement. The term "IUD acceptors" was often employed in demographers' reports, implying that family planning programs were trying to motivate women to *accept* the insertion of the device. This expression suggested that women passively received contraceptives rather than actively seeking them out. The Cairo consensus casts women as people with rights to choice and as individuals who will seek adequate reproductive services. Potential IUD users are now reconstructed as women

who recognize their need for contraception and appreciate being able to choose from a variety of methods including the IUD. The interest in the contraceptive device is now presented as an answer to the woman's needs rather than as a solution to the problem of overpopulation or the nation's. The Cairo language transformed the representation of IUD users from people that something had to be "done to" and passive acceptors of contraceptives to women who want to choose a contraceptive method for themselves. Users' class difference that was promoted explicitly in the 60s is also erased in this discourse, further blurring the distinction between applying contraceptives for social control of fertility and individual choice.

Through these rhetorical reconfigurations, the IUD has resolved the tension between its conflicting roles – an emancipating tool on the one hand and an oppressive device on the other – and settled in a new position that allows the device to be regarded as a neutral fertility control method. It has now become a device that is a good "choice" for many women who "need " contraceptives, the availability of which leads to the "empowerment" of women who are enabled to limit their fertility. While the physical improvements of the IUD are not to be understated,[23] significant social rearrangements took place in repositioning the device as a more acceptable method. The IUD was reconstructed to correspond with the consensus that was negotiated between the population establishment and women's rights activists in Cairo. In other words, this neutral representation of the IUD is in part an artifact of the resolution that was reached between groups with divergent positions on fertility control. This now "neutral" technology is a political construction; the reconfiguration of the technology resolved the

[23] For more details on improvements on the device itself, see chapter 5.

political and ethical tensions that existed previously in the struggle to pursue different reproductive agendas.

Long-Acting Contraceptives and Social Control of Undesirable Births

While it may be cast as a "neutral" method, the provider-controlled feature of the IUD begs a closer scrutiny. The IUD as an agent of bio-politics, as a technology that embodies the population control ideology, has had some direct applications in developing countries. Women's health advocates have repeatedly criticized the abusive use of IUDs by "overenthusiastic governments and overzealous community motivators eager to reach their targeted numbers of IUD or sterilization" (Dixon-Mueller 1993: 52). The IUD has certainly earned a bad name for having been part of fertility control campaigns run by developing country governments.

China is a showcase of population control in many respects. IUD use in China is an example in which the government deliberately mobilized the device to control fertility in its country. Chinese women comprise 60-70% of the more than 100 million IUD users around the world (Mauldin and Segal, 1994). China's population control policy has been known to be very stringent and is often described as oppressive to its citizens.[24] Since the state set its goal in 1979 to reduce the average fertility rate to one child per couple in order to achieve a negative population growth, the government has taken elaborate direct and indirect measures to meet its goal. Techniques include economic incentives for

[24] For an exemplary critique of China's population policy, see Aird (1990). For more discussion on fertility control in China by feminist scholars, see Anagnost (1988), Greenhalgh (1994), and Greenhalgh and Li (1995).

limiting births and economic disincentives for having more than one child as well as reproductive policing activities carried out by local birth control cadres who are assigned birth quotas and targets. As a result, contraception usage leapt from near zero to 50 or 60 percent in two decades. Although the government officially disapproves of coercive practices such as involuntary sterilization and forced abortion, reports of such practices have been made by the media, human rights activists, and anti-abortionists. China's population policy has been heavily criticized for its excessiveness while its demographic achievement is seen as exemplary.

The Chinese government has positioned the IUD as one of the major tools of fertility control, much the same way as it was conceived by the U.S. and international population control advocates of the 1960s. During the past few decades, the IUD, along with sterilization and abortion, became an indispensable tool for local birth cadres, who were directly responsible for controlling fertile bodies under strong pressure from the government to achieve low birth rates (Greenhalgh, 1994). The two low-cost, highly effective, provider-controlled procedures, namely IUD insertion and sterilization, which involve only one-time application and little or no attention afterwards, are for the most part the only methods available to the rural population.[25] User-controlled contraceptives such as the pill never accounted for more than two or three percent of contraceptive use in the villages that Greenhalgh studied. Pills were only available to women physically unable to use an IUD – a choice imposed by local health officials, not made by the women themselves.

[25] China's country wide statistics according to the Center for Reproductive Law and Policy indicate: 41.1% IUD, 36.6% tubal ligation, 11% male sterilization, 3.8% pills. http://www.crlp.org.

The Chinese government's intention to remove control over reproduction from its citizens is apparent in the design of the IUDs developed in China. According to Mauldin and Segal (1994), Chinese delegates visited the Population Council in the 1960s and took samples of the Lippes Loop and Ota Ring IUDs. Since then, China has developed their own IUDs including the stainless steel ring, V-shaped, and uterine cavity shaped models. Stainless steel rings are the most widely used contraceptive method in China (Gu, et al., 1994). These rings were deliberately designed without strings that drop into the vagina through the cervix, making them tamperproof: tailless IUDs are difficult for users to check the device's location and pull it out on their own (Greenhalgh, 1995). Self-removal of any IUD can be unsafe, but the removal of a stringless IUD by non-medical personnel may be even more dangerous since the device needs to first be located by feeling around inside the uterus.

Episodes of overzealous attempts to stem undesirable births in other countries using the IUD are abundant. In the late 1960s there was a massive campaign in India promoting the Lippes Loop in an attempt to expand the country's family planning program. Women were recruited as acceptors and were inserted the device without being given much information. Although the recruitment was initially successful, popularity fell as women developed adverse effects and the Indian government was compelled to reformulate its plans (Hartmann 1995). In the early 1980s, as part of an intensification of population control efforts, the Indonesian National Family Planning Coordinating Board under General Suharto launched a mass IUD insertion campaign. The campaign included a situation where thousands of women were brought together often under pressure from local officials, to have IUDs inserted in a "picniclike" atmosphere (Hartmann 1995: 76).

Coercion in Indonesia appears to have involved the military threatening the villagers. In one of the campaigns in West Java in1990, family planning workers accompanied by the police and army went from house to house and took men and women to a site where IUDs were being inserted, occasionally at gunpoint if women refused (ibid). Reports from Mexico suggest that indigenous women may be targeted heavily to use the IUD (Thompson 2000) and that medical staff may be inserting IUDs in women who have just given birth or had an abortion without their knowledge or proper consent (Ortega, et al. 1998).

Feminists and women's health activists have strongly criticized how IUDs continue to be promoted in many Third World family planning programs, believing that it is done so because women lack control over the device. They have justifiable concerns, since although its use in family planning does not automatically imply that there is abuse of the method, the threat of coercive insertion, insertion without consent, and denying removal definitely exists. Health risks for users in areas where medical attention is not readily available remains a problem as well. Strong opposition to the device prevails, founded upon the construction of the IUD as an oppressive device that victimizes women as the target of social control of fertility.

All long-acting contraceptives can provoke a similar sentiment. The U.S. controversy around Norplant reveals that the temptation to impose provider-controlled contraceptive methods on individuals deemed as responsible for undesirable births still exist, even in a social setting where population control on a mass scale is politically unacceptable. Uncomfortable questions were brought to the table during the Norplant controversy such as: Is this type of technology prone to discriminating against people of

certain race and class? In what circumstances is monitoring the fertility of others justifiable? How should undesirable births and responsible reproduction be defined?

After Norplant was introduced to the U.S. in 1990, its social reception was "mired in controversy, suspicion, and even ethnic conflicts" (Moskowitz, et al. 1995: S1). Contraception with Norplant involves implanting six hormone-releasing match-stick-size rods under the skin of the woman's forearm. Pregnancy is prevented for five years or until the implants are removed surgically. Within three years of its introduction, all sorts of controversial applications arose. Several judges in multiple states sentenced convicted child abuse to Norplant, while other judges devised probation arrangements for child abusers on condition that they use Norplant. A number of arguments have been made in support of contraceptive sentencing and conditional probation. Deterrence of further crime is one. This argument is that it shows child abusers that strong measures are taken against such crime (Dresser 1995). Removing obstacles for the rehabilitation of the woman and for the welfare of already born children under her care is another. This argument is based on the idea that the woman will face more impediments towards rehabilitation if she were to have another pregnancy and that additional stress may lead to the maltreatment of her existing children (ibid). In addition, the wellbeing of the unborn child is cited. Averting the birth of another child that may be victimized by the parent is the main justification of this argument for sentencing child abusers with Norplant insertion.

Other controversial application of Norplant included state legislators' proposal to require women who receive public assistance to accept Norplant implants and providing the contraceptive to poor adolescents at no-cost in school-based clinics. Arguments made

for making contraception a requirement for receiving welfare is based on the idea that children born to welfare mothers are burden for society and therefore undesirable. Offspring of teenage mothers are also deemed as undesirable for reasons including burden to society, impediment to the young mother's educational, social, and economic development, and for the welfare of the child itself. Supporters of Norplant use argue that the method provides young women protection from pregnancy for the long term and is less prone to user failure than other contraceptives. Advocates of providing Norplant free in school clinics believe that it would make the method an attractive option for teenagers, pregnancies among whom must be prevented.

All of these applications were met with suspicion because of the "deep worries about discrimination in the United States on the basis of class, race, and gender" (Moskowitz, et al. 1995: S2). Earlier in the century, the eugenics sterilization impinged on the protection of reproductive rights of many disadvantaged individuals in the United States. Contraceptive sentencing was prone to gender bias against mothers. Furthermore, disproportionate use of long-acting contraceptives in poor and minority women had always been a veritable concern. When Norplant came out in the U.S., staunch critiques against the provider-controlled long-acting contraceptive arose, perceiving it as another "instruments of gender or racial discrimination, and tools for limiting personal control" (S1).[26]

Responding to the controversy, the Rockefeller Foundation and the Ford Foundation, two organizations that have been long-time supporters of contraceptive development and family planning aid, funded a two-year collaborative study of the

[26] Dorthy Roberts (1997) offers a detailed critique of the racist nature of Norplant deployment by U.S. policy makers. Other feminist critiques see also: Leonard (2003), Kapsalis (1997), and Hartmann (1995).

ethical and policy dimensions of Norplant. Results were published in 1995 as a special edition in the Hastings Center Report.[27] While most authors of the reports believe that compulsory use of contraceptives is unjustifiable in most judicial circumstances and for welfare recipients, they do not entirely agree on whether the use of financial incentives/disincentives is acceptable. Whether health care providers have reasonable authority to strongly suggest the use of a long-acting contraceptive methods to a client – if they judge that more procreation is unfavorable for her circumstances and she is incapable of using other methods – remains a point of contention as well. There is a sense that "unfit mothers" and "irresponsible reproduction" should somehow be discouraged, and that the promotion of long-acting contraceptive method may be justifiable when the intention is to foster reproductive responsibility of individuals. Authors take great caution not to approve of broad usage that may suggest racial and class discrimination, and try to argue for very limited cases that are evaluated on an individual basis.

Some authors of the Hastings Report imply that the Norplant was intended to empower women by offering them a method of choice, and that these particular controversial applications of the technology are the unfortunate and unexpected fallout. This assessment, however, is inaccurate. As George Brown of the Population Council correctly points out, Norplant is a product of twenty years of research and testing (Brown 1995). When the "under-the-skin-pill" was initially conceived in 1969, the Population Council was in search of an effective method for family planing under the assumption that a user-failure free, long-acting method would have the largest demographic impact.

[27] Multiple Authors (1995)"Long-Acting Contraception: Moral Choices, Policy Dilemmas" *Hastings Center Report*, 25(1): S1-32.

The coming of the idea of subdermal implants coincided with the realization that the IUD is not for everyone. The development of an alternative long-acting method was certainly welcomed at the time. The contraceptive implant research project won the approval of WHO and UNFPA at a high level international conference in Belgiano, Italy, where important decision making on future world orders has taken place in the past.[28] Since Norplant originates out of the population management background and the endeavor to find an alternative "birth control for a nation," it is not surprising that American judges immediately considered using the method for monitoring socially undesirable births.

U.S. marketing of Norplant halted in September 2000, when its distributor, Wyeth-Ayerst Laboratories, recalled a defective batch of 22,000 implants. That left the IUD as the only long-acting method in the U.S. The IUD has had applications similar to those that made Norplant controversial, aimed at preventing what were deemed as undesirable births from unfit mothers. For instance, there is evidence that the IUDs were promoted during the 1970s to prevent teenage pregnancies. Two gynecologists serving "high-risk young girls" at the Cincinnati Adolescent Clinic during the 1970s wrote that the Dalkon Shield was the contraceptive method of their choice because it had a lower expulsion rate compared to other IUDs (Rauh and Burket 1975). After the Shield was withdrawn from the market, they expressed their advocacy towards using the IUD for its long-term effectiveness among their patients, whom they regarded as "a population group that keeps appointments poorly and moves frequently" and "have a 30 percent patient failure rate with the pills" (244).

[28] Segal (2003), who orchestrated the Norplant development at the Population Council, pitched his proposal for contraceptive implant at a conference in Belgiano, Italy, where formerly the Green Revolution was given a green light.

More recently, the IUD has been mobilized by CRACK (Children Requiring A Caring Kommunity), a non-profit group that offers cash to addicts who agree to be sterilized or use long-term birth control. CRACK, for instance, paid $200 to an 18-year-old mother, a former methamphetamine user, for being fitted with an IUD (Bland 2002). By its fourth year, CRACK had paid 686 addicts, including 15 men, in 22 cities nationwide to be sterilized or use long-term birth control. Critics say that the organization is forcing poor, drug-addicted women and men into irreversible decisions that does nothing to help them further. In addition, they are wary that disproportionate portion of the women that receive the service are minorities (Sanders 2000). Supporters of CRACK stress the welfare of the unborn babies, who may be born with an addiction, be neglected by the mother, or be otherwise disadvantaged. They also maintain that women in these situations do not desire babies and/or should be just as responsible of their reproductive activity as anyone else.

The type of fertility surveillance recently debated in the U.S. differs from the opposition against family planning programs that target the mass. Criticisms for demographically motivated family planning are grounded on the belief that the rights and health of individuals are compromised in favor of national agenda. It is implied that in these countries individualism and individual rights are not sufficiently valued. In the U.S. context, Moskowitz, et al. (1995) among other writers of the Hastings Center Report perhaps feel that the concept of reproductive rights, which tends to be understood in a non-interference approach resting on "values of personal autonomy, bodily integrity, competence, and privacy" (S2), needs to be reexamined. They stress that "contraceptive decisions necessarily occur in the context of *relationships, not in a vacuum"* (emphasis

mine, S2) and attempt to focus on individual's reproductive decisions in relationship to society. Authors now debate the justifiability of the use of long-acting contraceptives in particular circumstances alluding to individual "unfit mothers" and "undesirable births." In other words, they have reframed the issue of social control of fertility so that it can be considered in relation to "responsible decision making in the context of relationships" that needs to be considered on a 'case-by-case' basis. The concept of "undesirable births" that are no longer applied to the mass, but to individual cases, complicates the opposition to long-acting contraceptives, which used to mainly center around the conflict between national agendas and individual rights. Now with the case-by-case approach, various considerations are being raised, ranging from law, policy, welfare and ethics to the consideration of the individual woman's ability to avoid pregnancy and possibility of repeating child abuse. The concept of "reproductive responsibility" has been proposed to conceptualize the woman's fitness for further motherhood. As well, the notion of "undesirable birth" now includes the unborn child's welfare, which may be compromised by the specific circumstances that the mother is in. The debate also involves the question of whether individuals targeted by surveillance belong to an already underprivileged group, which may be further oppressed by the society as a result of uninvited interventions in their reproductive lives.

The IUD and the Politics of "Control" and "Choice"

This chapter has provided a more nuanced understanding of a contraceptive method that has often been regarded as a population control tool. Whether praised or dismissed for this label, the representation of the technology has assumed the dichotomous "mass"

versus “individual,” “control” versus “choice,” and “oppression” versus “empowerment.” I argue that a dichotomous base for evaluating a contraceptive technology is problematic. To begin with, the two movements that deployed contraceptive technologies, one primarily with the intention to liberate women and the other primarily with the goal of stemming undesirable births, have not always been clearly distinct. When they both emerged out from Margaret Sanger’s efforts to disseminate contraceptives, their goals seemed compatible. For a while, the population control rhetoric that bluntly neglected Third World women’s autonomy and wellbeing invited strong oppositions from advocates of women’s rights. Critics of IUD have captured this moment in history, when the IUD was clearly constructed as a population control tool, in disregard of the health effects on the users and of the users’ reproductive needs. For the past decade, the tension between the two movements seem to be resting on a resolution that was brought on by the 1994 conference and consensus. It has become more difficult to detect the differences in them because they now employ the same language. Now the rhetoric of women’s “needs” and “contraceptive choice” provides a cover for the temptation to use long-acting methods to “control” or to intervene in the fertility of others.

Long-acting provider-controlled contraceptive methods always beg the question: “who has the authority to control whose fertility, how, based on what grounds?” When the IUD was rediscovered in 1959, population control advocates answered: “the governments can control the fertility of their citizens, involuntarily, based on the need to curtail the nation’s rapid population growth, an obstacle for economic development.” They negotiated a “need” for the IUD and state intervention by generating the “unmotivated mass” whose fertility had to be easily monitored in order to guarantee that

they stopped reproducing. As the norms surrounding reproductive management changed and the politics of international population policy became more sensitive to objections from the women's movements, the answer to the previous question shifted to: "the women can control their own fertility, voluntarily, to fulfill her need to avoid pregnancy." The reconciliation between the population control ideology and women's rights advocacy through the Cairo consensus repositioned all contraceptive methods as a neutral choice that adds to the variety for women to choose from. When represented as one of the neutral methods, the IUD escaped the feminist critique that the device becomes an oppressive fertility control tool in the hands of governments and health care workers eager to avert undesirable births in their nation or region. The IUD sits neatly within the rhetoric that stresses that women in developing countries have an unmet need for fertility control and that providing them with contraceptive choices will inevitably empower them. We can speculate, however, that a full range of contraceptive choices is not being offered to all women around the world. Public healthcare providers determine the range of choice for the majority of women around the world. Some clinics may be providing the IUD or another long-term contraceptive as default, whereas others may be offering a fuller range of methods. The IUD, then returns to an uncomfortable position, where two conflicting roles – disempowering women by taking control away from them and empowering them by giving them control over their fertility – may hold true depending on the context.

So, where do all these leave the IUD in relation to social control of fertility? Though not inherently oppressive, the IUD is certainly amenable to certain politics.[29]

[29] See Winner (1986) for discussions on artifacts that embody political qualities.

The IUD can reify a discriminatory political agenda by becoming the keystone in a power relationship where one is in favor of monitoring the fertility of another. In other words, the IUD materializes a social relationship, where one party is assured that the pregnancy of another party is being averted, which would not be possible, difficult, or unacceptable without this technology. The now widely adopted discourse of women-centered family planning emphasizes the role of contraceptives in a different relationship, where women's reproductive needs are met by the assistance of health care providers. Nevertheless, family planning clinics present plenty of opportunities for IUDs to reify social control of undesirable births. Whether women's own choice is being overridden or the desire of the woman herself coincides with a national agenda can be quite difficult to elucidate.

In the U.S. setting that I described above, the acceptability of requiring the use of IUD and/or giving incentives to use the IUD for certain "unfit mothers" are being debated. The temptation and resistance to establish social control of fertility with the help of long-acting contraceptives is leading to a fine negotiation over how individual "undesirable births" should be decided. Various concepts have been proposed such as "responsible reproduction," "unfit mother," and "welfare of the unborn child," all of which move the debate into a much more complex realm and specific to case-by-case basis compared to the previous controversy that was founded on the conflicting interest between the state and women.

Chapter Three: The IUD in the U.S. Commercial Scene

Constructing Contraceptive "Choice" for American Women

This chapter considers the meaning of "contraceptive choice" in our consumer culture, where the availability of modern birth control is dependent on the doctors' and pharmaceutical companies' willingness to provide the method. The IUD has never been popular in the American market, particularly after the Dalkon Shield crisis, which left a strong negative impression about the safety of the method and its vulnerability to lawsuits. Pharmaceutical companies withdrew IUDs from the American market during the mid-1980s as a response to mounting lawsuits against their products and many doctors have since stayed away from the device. Despite a multitude of problems that early IUDs caused, a number of women who used it during the 1970s and early 80s found it a desirable choice for themselves. The withdrawal of the device from the market deprived these women of their method of choice. The return of the IUD to the American market required significant rehabilitation to wipe out the negative image of the Dalkon Shield fallout including eliminating the health practitioners' fear of litigation. Today, two types of IUDs are marketed as "birth control for mothers," offering a "choice" for women who fit a certain marketing segment. This chapter follows the creation, destruction, and the recreation of the American market for IUDs over the last 40 years to demonstrate how the interests of physicians and pharmaceutical companies have mediated the availability of contraceptive choice for women.

The Initial Acceptance of the IUD in the United States (1960s to mid-1970s)

While IUDs were explicitly revived during the early 1960s by the Population Council to solve the overpopulation problem overseas, some inventors and pharmaceutical companies also saw an opportunity in the American domestic market.[30] IUD inventors such as Lazar Margulies, Charles Birnberg, and Jack Lippes quickly applied for patents on their spiral-, bow-, and loop-shaped IUDs in the U.S. and overseas. By 1968, 28 different IUD models were known to the FDA, ten of which were patented (FDA 1968). Some models had nation wide distributors, while others were most likely inserted in a limited number of women by their inventors and collaborators. Some pharmaceutical companies manufactured and distributed Margulies's, Birnberg's, and Lippes's inventions, hoping to make a profit. Ortho Pharmaceuticals, a major producer of oral contraceptives, for instance, marketed the Lippes Loop and GyneKoil (Margulies Spiral). Other companies marketed their own IUDs, such as the Saf-T-Coil, developed by Desert Pharmaceuticals and distributed by Schmid laboratories, and the Dalkon Shield, developed by Hugh Davis and later distributed by A.H. Robins. Unlike the models developed by Margulies, Birnberg, and Lippes, which were evaluated by the Cooperative Statistical Program, a multi-national large-scale clinical test closely affiliated with the Population Council, these independent models were not tested systematically on a large number of patients for an extended period. Internal memos of the Population Council indicate that staff members were particularly unimpressed with the Saf-T-Coil, finding

[30] In order to secure supplies for distribution overseas, the Population Council oversaw domestic manufacturers who produced IUDs for exports as well as helped developing countries establish their own manufacturing plant. This chapter focuses on IUD marketing in the United States.

Desert Pharmaceuticals' representative "abysmally ignorant of IUDs" and being "very vague" about the device's clinical experience.[31] Yet, since the FDA did not regulate contraceptive devices at the time, the Saf-T-Coil advertisements, which promoted the device as an "alternative to the pill" and "the device of first choice," were printed in medical journals for obstetricians and gynecologists. Elaborate advertisements for the Dalkon Shield, whose efficacy was later found out to be exaggerated, also found their way into medical journals (Mintz 1985).

The stage had been set for IUD marketing by the oral contraceptive, which was introduced to the market a few years earlier. The pill, which had been received with a great deal of enthusiasm, had prepared both women and doctors for the arrival of another "modern" contraceptive method. Prior to the pill's arrival, birth control depended on methods such as homemade pessaries, condoms, coitus interruptus, pre- and postcoital douches, rhythm method, and over-the-counter spermicides, all of which had high failure rates. Both men and women who read about the pill in popular magazines or heard about it from friends during the late 1950s wrote letters describing "their predicament of too many unplanned children and looked to the pill for salvation" (Wakins 1998: 50) to Planned Parenthood or to Gregory Pincus, inventor of the oral contraceptive, to request information and sometimes the actual product itself. Women appreciated the reliability of the pill as well as the independence of this method from the act of sexual intercourse, as well as the fact that they had sole control over the method of birth control rather than having to rely on their sexual partners' compliance. The pill stimulated the consumers

[31] The Population Council Office Memorandum, May 20, 1965. Subject: "SAF-T-COIL" RAC, PC, Box 123, Folder 2257.

and created the market for contraceptive methods by raising the expectation of women, who now expected to obtain reliable modern methods of birth control.

Not only did the pill raise expectations towards modern methods, but it also helped establish a doctor/patient relationship necessary for IUD distribution. Since previously available fertility methods did not require medical intervention, physicians had played little role in birth control. Women had also been shy about inquiring their doctors about contraception. When the pill became available only at the doctor's office, women started requesting them. This transformed the prior doctor/patient relationship in which patients passively sought the doctors' diagnosis and treatment. With the pill, women "knew exactly what the problem was (they wanted to avoid pregnancy) and how to treat it (by taking the pill)" (Watkins1998: 50). The other side of this transformation was that women now had to rely on doctors to provide them with the method they wanted. Physicians became the chief custodians of the new technologies and heightened their professional authority as experts. Even though their vulnerability to pregnancy was reduced and they became more assertive with their physicians about their needs, women became more dependent on doctors and the biomedical industry. The IUD was another modern method available exclusively at the doctor's office or the clinic. As Andrea Tone (1999) spells out below, the popularization of the pill set the stage for the introduction of the IUD:

> After 1965, when IUDs first became widely available, physicians' authority to manage female contraception, the superiority of scientifically engineered birth control (a superiority celebrated by women and scientists alike), and the image of female birth control users as patients went largely uncontested…[…]… The changes [the pill] had wrought made it that much easier for IUDs, yet another scientifically engineered, doctor-controlled contraceptive for women, to gain acceptance. (Tone 1999: 381)

The controversy over the pill's safety, which started in the late 1960s, provided people invested in the IUD an opportunity to gain a stronger foothold. As studies connected thromboembolism (blood-clot disease) with pill use, articles on doubts about the pill appeared in numerous popular journals and newspapers (Watkins 1998). Increasing numbers of women quit using the pill, citing physical problems experienced personally (70%) and concerns over reports of adverse health effects (17%) (Jones, et al. 1980). Hugh Davis grasped this opportunity and made "expert" claims about the risks of the pill in order to gain more acceptance for his Dalkon Shield IUD (Mintz 1985). When public concern about the safety of oral contraceptives was nearing its peak, Davis appeared on TV, inciting fears about the pill and announcing that some modern IUDs, (i.e. the Dalkon Shield), provided 99% protection. Davis attacked the pill, obviously hoping that IUDs would gain more popularity, while playing up "the notion that science and technology had come up with a 'modern' intrauterine device in a nick-of-time rescue" (Mintz 1985: 38). His testimonies were spread by reporters and television news. One Washington reporter stated, "Dr. Hugh Davis, of Johns Hopkins University, testified that the possible side effects [of the pill] are so great, if the pill were a food product it would probably be ordered off the market" (Watkins 1998: 111). Another evening news reported that Davis said, "Never in history have so many individuals taken such potent drugs with so little information as to actual potential hazards" (ibid). We are appalled today by his testimonies, knowing that millions of his own hazardous devices were inserted into women without sufficient information about their danger and without being ordered off the market soon enough to prevent further injuries.

Controversy over the safety of the pill appears to have had a tangible impact on IUD use and perception. A Planned Parenthood Clinic in Detroit reported that requests for IUDs doubled during the month between January 14 and February 13 in 1970 as a result of patients discontinuing the pill. The New York City clinic also reported that one-fifth of oral contraceptive users switched to the IUD or diaphragms. Elizabeth Watkins (1998) observed that as reports of the health risks of the pill began to surface, population control advocates rearticulated their recommendations on which contraceptive method was appropriate for whom. Before the pill controversy, the IUD was primarily perceived to be for the poor and the pill for the wealthy. During the pill controversy, a new idea emerged where that middle-class and better-educated women should use the diaphragm and only those who "couldn't" or "wouldn't" use the safer barrier methods should continue to use the pill. The pill was "good enough" for poor women who needed to control their fertility. Classism in contraceptive technologies has taken many turns.

Promoting the device directly to women may have also had an impact on the acceptance of IUDs. Direct marketing of prescription drugs was prohibited by code of ethics in the pharmaceutical industry during the 1960s and 70s. A. H. Robins, however, found ways to appeal directly to consumers, namely by arranging publication of articles favorable to the Dalkon Shield in women's magazines. In August 1972, for instance, *Madomoiselle* ran an article on contraceptives, in which the Dalkon Shield was mentioned as the preferred modern method (Mintz 1985). Hugh Davis also found Barbara Seaman to promote the Shield for him. Seaman, author of the *Doctor's Case Against the Pill,* which interrogated the health hazards of the pill and was cited extensively by those who were concerned about the issue, referred to the Shield

extensively in her book. It is difficult to quantify how much impact these promotions had on the popularization of IUDs, Dalkon Shield or not. Testimonies of former IUD users interviewed by Nicole Grant (1992), Morton Mintz (1985), and Karen Hicks (1994) suggest, however, that at least some of the women "chose" the IUD based on what they had read or heard in the popular media.

During the early days of IUD marketing, women had a limited choice of birth control. The side effects and health concerns of the early pills sometimes drove women to IUDs. One woman who fell victim to the Dalkon Shield told Mintz, "I gained a lot of weight on [the pills]. My body became swollen, and I felt like an elephant" (Mintz 1985: 106). She decided to go off the pills some time later, and requested the Dalkon Shield at the university health service based on the information she received from them. Women who "chose" the IUD often expressed a strong desire to avoid pregnancy as well as the burden of the pill's side-effects as the reason for their choice. Many women who chose the IUD did so, despite its own side-effects that they had to endure, not because the method was ideal, but because there were no other acceptable options.

The former unavailability of reliable contraceptive methods formed the basis for the contraceptive "choice" that American women had in the 1960s and 70s, which was limited to the pill that had unpleasant side-effects and potentially caused serious health problems and the IUD that had its own unpleasant side-effects and was generally less reliable compared to the pill. The IUD never gained popularity as high as the pill in the United States. In 1970, at its peak, the IUD comprised only 7% of American women's contraceptive use, whereas the pill accounted for 34% (Watkins 1998: 62). Although the IUD had a much smaller role in the domestic market compared to overseas, where the

device had a clear role of serving population control, the method found its niche as an alternative to the pill when the pill's side effects and health concerns were both strong and unacceptable to many women. The advantage of the IUD over the pill was also expressed as "convenient," "non-hormonal," "appropriate for smokers of any age," and "appropriate for women over 35, who have "passed the Pill years."[32] Before the safety issue of IUDs came under its own spotlight, the acceptability of the method in the U.S. was gained through the market and doctor/patient relationship established by the popularization of the pill as well as the niche created by the downfall of the pill. IUD became a "choice" for women when pharmaceutical companies' economic interests made the device available and gained a certain level of acceptance despite its faults due to the fact that there was no ideal contraceptive method during the 1960s and 70s.

The Dalkon Shield Crisis and the Downfall of IUDs (mid-1970s to mid-1980s)

During the 1970s and 80s, the Dalkon Shield IUD injured thousands of its users, leaving permanent scars not only on its users and their families, but also on the IUD market in the U.S. The Dalkon Shield was distributed by A.H. Robins between January 1970 and January 1975. Aggressive marketing, sometimes employing misleading data and direct promotion to women, which violated the ethical code of the time, helped boost the Shield's popularity, resulting in a large number of victims. Hugh Davis touted that his invention marked a pregnancy rate of 1.1%, which made it just as attractive as the pill (the pregnancy rate of which ranged from 0.7% to 1.4%) and more attractive than the

[32] Copper-7 advertisement (1981).

Lippes Loop (the pregnancy rate of which was 2.7%) (Mintz 1985). The 1.1% pregnancy rate was rather fictitious a number considering that Davis only observed Shield users for 5.4 months on average and only two users had retained it for more than a year. Third party clinical testing concluded that the Shield's pregnancy rate was about 5%. Another doctor who had studied 756 women for a period of nine months (with average five months retention) reported 14.9% removal due to medical reasons and 1.9% pregnancies (Gabrielson 1971, reported in Mintz 1985). After 18 months, 26.4% of Gabrielson's patients had the Shield removed and 5.1% had experienced pregnancy. A.H. Robins, however, consistently ignored unfavorable reports and complaints from physicians who had seen higher frequency of pregnancies and/or complications among their patients and continued to promote the Shield as "modern," "superior," "second generation," and "safe" IUD (Mintz 1985: 58).

To make matters worse, A.H. Robins sold the "nullip" model, a smaller Shield that Davis had devised specifically for nulliparous women, or women who have never borne children, without any safety and efficacy studies. Because conventionally the IUD was considered to be ill-tolerated by nulliparous uteri, the nullip Shield received a considerable amount of attention as a desirable innovation from the family planning community and the popular media.[33] Two doctors reported enthusiastically from the Cincinnati Adolescent Clinic that they had inserted the Shield in 45 nulliparous and 31 parous young women between 12 and 22 years of age, whom they considered "high-risk young adolescent patients" that keep appointments poorly, move frequently, and have "a 30 percent patient failure rate with the pill" (Rauh and Burket 1975). When it came to

[33] For instance, the nullip Shield was covered extensively in news articles in November 1969 (Mintz 1985).

the issue of controlling young unmarried women's fertility, the Shield saw no class boundaries. During the early 1970s, when abortion was illegal, universities and colleges provided young women with the nullip model of the Dalkon Shields in on-campus student health centers in order to prevent female students from getting pregnant without the option to terminate their pregnancies legally.[34] Soon after its release, A.H. Robins quickly realized that the nullip model was not living up to its advertisements: the pregnancy rate as well as removal rate due to pain and bleeding were much higher than promised. A. H. Robins, however, never warned practitioners that their product may not perform as well as advertised, and the sale of the nullip model rose to 883,500 by 1972, which sadly resulted in many young American women who were injured and left sterile by the device (Mintz 1985).

Morton Mintz (1985) details how A.H. Robins marketed the Dalkon Shield using aggressive campaigns while ignoring alarming reports about the device's high pregnancy rate, high removal due to bleeding and pain, cases of serious infection, and incidents of serious and lethal septic abortion with the device *in utero*. According to the company's own estimate, 56 of each 100 IUDs inserted in America were the Shield by the end of 1971, 59 out of 100 in 1972, and by the end of 1973, the Shield outnumbered the two leading rivals – the Lippes Loop by two to one and the Saf-T-Coil by four to one, and the two of them combined by 1.3 to 1. The company sold 4.5 million devices in 80 countries before halting sales. Estimated 2.2 million American women had the Dalkon Shield

[34] Mintz (1985) refers to "Mary," who received her Dalkon Shield as a college student and became infertile after her aggravated PID went untreated in spite of consulting the doctors multiple times (p.106). Another former Shield user who obtained her IUD from an on-campus health clinic was also injured and suffered infertility (personal communications). Another woman obtained her Shield upon marriage from her doctor – her Shield got embedded in the uterus, she had two ectopic pregnancies and no children (personal communication).

inserted, of which 110,000 (or 5%) would have gotten pregnant. The company's own conservative estimate in April 1985 was that 4% of Dalkon Shield wearers were injured – which amounts to 90,000 women in the United States. Women started to sue A. H. Robins for their injuries, which amounted to more than 14,000 claims with more coming in at the rate of 15 a day by the middle of 1985, when the company filed for bankruptcy. The total number of women who filed claims against A. H. Robins exceeded 300,000.

The medical community responded to the Dalkon Shield fallout by conducting research on IUD safety. I will describe in chapter five how scientific studies isolated the Dalkon Shield as a particularly dangerous device, while at the same time attributing the risk of pelvic inflammatory diseases associated with the use of other IUDs to sexual practices of the users rather than the devices themselves. Despite research reports that generally located the blame on the Dalkon Shield for spontaneous abortions and PIDs, many physicians (concerned about their patients' safety or being sued) became reluctant to supply any IUD to women who requested them.[35] Eventually, IUD users dropped from two million in 1982 to 0.3 million in 1995 (Piccinino and Mosher 1998). In 1982, 7% of all contraceptive users used the IUD, which dropped to 3% in 1987 and subsequently 1% by 1992 (Forrest and Fordyce 1993).

In addition to the dwindling number of users, pharmaceutical companies experienced mounting costs of defending lawsuits against IUDs. Although non-Shield IUDs have not been associated with the range of health problems attributed to the Dalkon Shield, users who contracted pelvic inflammatory diseases while using other IUDs brought lawsuits against the manufactures (Anonymous 1986: 35). By the time Ortho

[35] Nicole Grant's interviewee, for instance, had problems obtaining a second IUD in 1981. Similar experience was communicated to me personally by a former copper-7 user, who was not able to obtain her fourth IUD from Planned Parenthood.

Pharmaceuticals took the Lippes Loop off the market in September 1985, the company had faced about 200 lawsuits (Anonymous 1985). In the 13 years that Searle had been manufacturing copper IUDs in the U.S., 775 lawsuits had been filed against the company on the grounds that the devices caused PIDs.[36] When Monsanto acquired Searle, which was marketing Copper-T and Copper-7 devices, the acquiring company pulled them from the market. Ortho Pharmaceuticals, which also distributed Copper-T IUDs, soon followed Monsanto out of the U.S. market. The IUD was no longer a viable product for profit seeking pharmaceutical companies. Consequently, IUDs virtually disappeared from the U.S. except for Progestasert, a hormone-releasing IUD manufactured by a small company in California.

Population Council scientist Sheldon Segal portrays the companies' decisions to withdraw IUDs as a business and economic decision:

> There was an army of litigating lawyers out there, experienced in winning Dalkon Shield cases, eager to identify new targets. Monsanto was unwilling to expose the entire assets of the corporation for the sake of products, which, though medically safe, were vulnerable to litigation while adding little to corporate revenues. (Segal 2000: 85).

Population Reports (1995) similarly foregrounds the view that lawsuits drove IUDs out of the American market, while implying that IUDs other than the Dalkon Shield are actually safe.

> Why were there so many lawsuits in the US over IUDs? This litigation is part of a larger US crisis in liability and liability insurance that is affecting many products and services in the health field as well as in other areas. IUDs became a particular target for US lawsuits because research in the mid 1970s linked one IUD, the Dalkon Shield, to spontaneous

[36] According to Anonymous (1986), an article in *Family Planning Perspectives:* "Of the 470 cases that have been resolved, only 10 went to trial, and the company successfully defended eight of these. Relatively small payments were made in about two-thirds of the cases that were settled out of court. Nevertheless, the legal expenses involved in preparing these cases has been high. A Searle spokesman estimates that the four most recent court cases (all won by Searle) cost the company a total of $1.5 million . With 300 cases against the manufacturer remaining, Searle has found liability insurance to be "virtually unobtainable." Thus, the corporation decided to suspend U.S. production of the device, and is preparing to sell its international IUD interests."

> abortions and pelvic inflammatory disease…. The extent of health risks with the Dalkon Shield may have been due to its particular design. Because of lawsuits and for other economic reasons, it has become more difficult and expensive for pharmaceutical companies and other institutions to obtain insurance. (Population Reports 1995: 3)

These statements leave little room to question the safety of IUDs even though concerns over health risks is the primary reason that IUDs fell out of favor in the first place. The safety issue concerning IUDs, in the minds of Segal and authors of Population Reports, had already been investigated and accounted for through scientific research during the 1970s and 80s. They were keen to emphasize that the litigious culture, not the health risks of the device, was responsible for the lack of IUDs on the U.S. market because they wished to deter any criticisms that dangerous devices that are not acceptable for American women were being distributed to women in developing countries.

The withdrawal of IUDs from the American market was a mixed blessing. If the FDA had recalled the Dalkon Shield sooner, it would have saved thousands of women from their miseries. The withdrawal of the relatively safer models from the market in the mid-1980s, however, was more about saving the companies than the women. When companies withdrew IUDs from the market, Louise Tyler, then medical director of the Planned Parenthood Federation of America commented that "it is a disastrous situation when women are denied use of the IUD because of today's litigious climate and a company's inability to retain insurance coverage" (quoted in Anonymous 1986: 35). IUD was a choice for women only when companies saw profit in the device. Despite the large number of women who were injured by the Dalkon Shield, some users of other IUDs had found the method favorable over other forms of contraception.[37] For a number of women who were at less risk, due to a medical history that made them appropriate

[37] In a 1992 survey, 96% of US IUD users were satisfied with the method, only topped by those who used implants (Forrest and Fordyce 1993).

candidates for IUDs, the disappearance of IUDs from the market and physicians' unwillingness to provide the method signified the deprivation of their contraceptive choice. Some of those who lost their option may have had to opt for surgical sterilization (Forrest 1986). In our litigious and capitalist culture, economic interests and avoidance of liability constructed "choice" for women.

Informed Consent and the Rehabilitation of IUDs (late 1980s)

Rehabilitation of the IUD in the U.S. after the Dalkon Shield crisis required considerable effort. Injuries experienced by IUD users during the 1960s and 70s were consequences of a mix of factors including the use of Dalkon Shields, inappropriate insertion techniques as well as inappropriate patient selection, low awareness about risks of PID that led to delay in treatment, and early models that had higher failure rates. The negative image of the method combined with the strong impression about risk of lawsuits against practitioners had to be cleaned up in order for the IUD to regain acceptance from the medical community. In chapter five, I detail the process by which scientists negotiated the "safety" of IUDs by making claims about the relative low risk of non-Shield IUDs used by appropriate users. In the current section, I will describe how informed consent stood in for the "safety" of IUDs in the process of regaining acceptance for the method. In other words, the practitioners' fear of litigation had to be addressed and "safety" in terms of being protected from lawsuits had to be assured for them before medical professionals would start inserting IUDs again.

In 1988, GynoPharma, a small company headed by Roderick MacKenzie, former employee of Ortho Canada, licensed the Copper-T 380A from the Population Council and introduced it in the United States under the brand name ParaGard. MacKenzie, who had experience marketing IUDs in Canada, started the company believing that there was demand for the contraceptive method in the U.S. A symposium sponsored in part by GynoPharma on the medical, legal, and social issues of IUDs was held in conjunction with the release of ParaGard. The symposium was videotaped and edited so that it may be distributed widely to medical professionals and libraries.[38] William Ledger of the New York Hospital opened the videotape by stating that the introduction of IUDs during the 1960s as an alternative to the pill was "a marvelous event," and that the device is "a much needed contraceptive by American women." Ledger pointed out that the device was unfortunately "aggressively promoted to women who would have been a bad selection" or "inappropriate users."[39] Explaining that during the intervening years, namely between the mid-1970s and the late 1980s, scientists had discerned factors that had contributed to the incidents of injuries associated with IUD use, Ledger assured that the new IUD was an ideal contraceptive for many, particularly now that safer and more effective approach to clinical development had been developed.

The videotape featuring the symposium was aimed at the rehabilitation of the Copper-T IUD for the American market after the Dalkon Shield crisis. The topics of the symposium were not only geared towards eliminating a number of doubts about IUDs, namely questions regarding their efficacy, safety, mechanism of action, but also addressed the fear of litigation that presumably contributed to the reluctance of the

[38] "The New IUD: Medical, Legal, and Social Issues – Highlights of a Symposium" Moderator: William J. Ledger, M.D. The New York Hospital. (Video, Running Time 49 minutes) (1988)
[39] ibid

medical community to accepting the method once again. The first presenter, Wayne Bardin, Vice President and Director of Biomedical Center of the Population Council, emphasized that ParaGard was more effective in preventing pregnancy than the older plastic devices and earlier copper-bearing devices. He also announced that studies showed low rates of PIDs in Copper-T users, while pointing out the distinct physical difference of the Dalkon Shield that contributed to high rate of infections among its users. Ledger followed up in the video by reassuring that "we know more today than a decade ago about how women respond to infection" and that "today, infections are rare, and simple clinical guidelines can reduce infections even more."[40] He stressed that the risk of infection with the Dalkon Shield was 11% higher than non-users while the Copper-T only raised the risk by 1.3%. He also instructed that certain population of women with elevated risk of infection should be avoided, including *indigent* women, whose susceptibility to PID is higher as a class, and women younger than 24, whose incidence of PID is higher as a group. He also mentioned that women in monogamous relationships were found not to have elevated risk of IUD-related infection. Ledger concluded that careful screening of users would lead to the prevention of IUD-related infections.

The second presenter at the symposium, Maria Elena Ortiz, a Chilean scientist affiliated with the Population Council, focused on the mechanism by which IUDs prevent pregnancy. As I detail in chapter four, it became imperative for scientists who supported IUD use to deflect attacks by antiabortionists that the device aborted developing embryos by showing that IUDs most likely inhibited the fertilization of the egg rather than the implantation of the fertilized egg as was popularly believed until the mid-80s. With the

[40] Ibid

understanding that it was important that the mechanism of action of the IUD would not be viewed as abortive in order for the method to be widely accepted, Ortiz reviewed a number of studies, after which she announced that it was doubtful that IUDs exerted their contraceptive efficacy by mainly or exclusively interfering with implantation and that interfering with fertilization was the alternative explanation.

The final presenter, Lawyer Nancy Ledy Gurren, addressed physicians' concern over lawsuits, contending that it was important to "master the principle of legal liability and resist the temptation to be intimidated by them."[41] In a forceful presentation, Gurren assured the physicians that with proper documentation practice, they can defend themselves from litigations. Informed consent is central to her doctrine. She reviewed the physicians' obligation to inform the patients of the risk of the procedure, alternatives to the procedure, risks of the alternatives, and risks of avoiding treatment altogether. She explained that while the objective of informed consent was to disclose the patients for their benefit what they needed to know, when translated into legal terms, informed consent served as *documentation* for the physicians. Gurren stressed that physicians should routinely document what he/she informed the patient, particularly since the patient may forget the conversation that took place. She urged that printed informed consent with patients' signature was a good way to document that the patient heard the warnings and agreed to the treatment. "A disgruntled patient after 10 years can say that there was no disclosure, so written evidence to disclose risk to the patient is helpful in proving that the doctor did disclose." Gurren repeatedly emphasized physicians' protection and documentation as "physician's ultimate defense."

[41] ibid

Furthermore, Gurren elaborated a hypothetical situation in which the company and the physician would form a partnership in the event of a lawsuit. While pharmaceutical manufacturers are obliged to produce and sell safe non-defective products, the law only required that prescription medication like the IUD to be reasonably safe and that the manufacturers warn users who may not be able to use the product safely. After the pill controversy, the law mandated contraceptive manufacturers to warn both the physician and the patient of the risks associated with the method using prescribing information, physician's package insert, and patient's package insert. A patient must sign after reading the patient's package insert indicating that she agrees to the stated risks, which provides drug companies evidence that known risks have been communicated to the physician and the patient. Gurren explained that, in the event of a lawsuit, the company would defend the safety and efficacy of the product, while the physician, "having paid attention to what information was communicated to him [sic] by the company and having considered the patient's need, would be able to say that he used his reasonable judgment using the information that was communicated to him by the drug company and other scientific journals." Gurren forcefully concluded that the natural inclination to be intimidated by potential lawsuits must be resisted since "no matter how careful, [lawsuits] will be instituted. Lawsuits should be looked at as a risk of the procedure."

The physician-centered role of informed consent that Gurren conveys is significantly different from the one that was once conceived by the women's health activists who during the controversy over the safety of the pill fought to implement the practice of informed consent for women's sake. When Barbara Seaman published *The*

Doctors' Case Against the Pill, she presented a wealth of evidence against the safety of oral contraceptives and challenged the practices of the pharmaceutical industry and the medical profession. One of the things that she demanded was that pill manufacturers and physicians "share all available information about the health risks of oral contraception with patients, so that the women themselves could make informed decisions about birth control" (Watkins 1998: 104). Informed consent in medical practice was relatively new, but Seaman's demand fit into the general trend of increasing doctor-patient interactions in all aspects of medical practice. Moreover, Seaman's concern that women were not receiving adequate information from their physicians mirrored the growing concern among feminists about gaining control over their own bodies and health. Women's health activists actively pushed for the disclosure of risks associated with pill use. In 1970, less than a year after the federal government entered the medical and public controversy over the safety over the pill, the Food and Drug Administration ordered the manufacturers to include inserts for patients describing the known risks of oral contraception in every package of birth control pills. Women's health activists' intervention no doubt played a role in the institution of this regulation.

The battle over the inclusion of the patient package insert and its wording, however, were also affected by other stakeholders such as pharmaceutical companies, physicians, population control advocates, and family planning organizations, who had varying intentions and stakes in the practice. Elizabeth Watkins (1998) details the process by which the patient package insert for the pill was instituted. Members of D.C. Women's Liberation sought to redistribute power in society, which included the realm of medicine, where these feminists demanded equal participation of women in their

healthcare. When FDA announced the requirement of package inserts, many feminists regarded this as an important victory since the oral contraceptive was to be the first orally administered drug to carry a detailed warning directed at patients. The original text prepared and proposed by the FDA for the patient's pamphlet consisted of a 600-word document that described in lay language the health risks, side effects, and contraindication of oral contraceptives. The final version, however, was reduced to 100 words by the FDA, who gave into the pressure from professionals, industrial, and government interests. The watered down version of the package insert, which listed only one complication and five side effects, outraged women's health activists, who demanded that full disclosure was necessary. Watkins, nevertheless, observes: "although watered down, the insert still represented an important turning point in the doctor-patient relationship. Patients had demanded the right to know about the medications prescribed for them, and the package insert legitimized this claim" (127) and "served as a symbolic reminder of the patient's right to informed consent" (134).

Contrary to the patients who welcomed the information disclosure, doctors, with very few exceptions, strongly opposed including patient package inserts at all. Faden and Beauchamp (1986), historians of informed consent, note that physicians during the 1970s generally opposed to informed consent practices; some considered it impossible to fulfill and others inconsistent with good patient care. Before the American Hospital Association instituted the Patient's Bill of Rights in 1973, there was little notion that informed consent is a moral right of the patient and that conforming to the informed consent practice was a physician's obligation. During the early 1970s, the practice was interpreted as a new legal doctrine instituted in the medical field (Faden and Beauchamp

1986). Doctors who prescribed the pills objected to the package insert on the grounds that the insert would interfere with the doctor-patient relationship and that the government should not regulate what information the doctor must give to each patient. Pharmaceutical companies also vehemently opposed to the inclusion of FDA-mandated warnings in packages of oral contraceptives.

Watkins (1998) found that a few doctors approved the insert, agreeing with consumer advocates that patient should be fully informed before making the decision to use birth control pills. One doctor, however, approved the insert arguing that it would "serve as a protection for the doctor rather than as a cause for initiating lawsuits" (125). Similar position was expressed by the American Medical Association (AMA) in the wake of the pill controversy in 1970. The AMA "counseled physicians to give their patients information about the advantages and disadvantages of the pill and other methods of birth control "to protect themselves against possible malpractices suits"" (Quoted by Watkins 1998: 134). The AMA further advised that the doctors make notes in the patient's medical history that the side effects of different contraceptive had been discussed. The perspective that informed consent serves not only to help the patient make an educated decision, but also to cover the prescribing physician in case the patient sued, originated early, but received the spotlight especially after doctors were made aware of the possibilities of being sued.

During the reintroduction of the IUD, informed consent was framed strongly as a means to protect the physicians rather than as patients' right to know. In fact, a 1982 Harris survey suggests that the practice had never been interpreted as such. Faden and Beauchamp (1986), summarizing the results of the survey as follows:

> Only 26% of physicians indicated that informed consent had anything to do with a patient's *giving permission, consenting* or *agreeing* to treatment; only 9% indicated that it involved the patient's making a *choice* or stating a *preference* about his or her treatment. The overwhelming majority of these doctors appeared to recognize only the information giving component of informed consent, viewing informed consent as explaining to a patient the nature of his or her condition and treatment, having the patient understand what is taking place" (99)

Today's IUD patient package is written in small letters that are barely legible. Patients are asked to sign a form stating that they have read and understood the information and that all questions have been answered.

The 2002 *Snyder v. Ortho-McNeil Pharmaceuticals* case illustrates an example of informed consent protecting the manufacturer and the health care provider (Anonymous 2002). The Snyders, a couple in California filed a personal injury complaint against Ortho-McNeil Pharmaceuticals alleging that the Copper-T IUD manufactured by the company failed to prevent pregnancy, became embedded in the woman's uterus and perforated her uterine wall. The suit also alleged medical malpractice against the nurse-midwife who inserted the IUD in the client in May1999 after discussing the risk associated with the device with the couple. According to the court's record, the nurse-midwife told the couple that the IUD is not 100 percent effective in preventing pregnancy and gave them a package insert for the IUD that discussed various risks associated with using it, including the possibility the device could become embedded in the uterine tissue and could perforate the uterus. Snyder signed the informed consent form acknowledging that she had read the brochure for patients in its entirety and had all of her questions about risks and benefits associated with the IUD answered by the health-care provider. Four months later, Snyder discovered that she was pregnant. An ultrasound examination determined that the IUD was still in her uterus. The IUD was successfully removed, but

visual inspection and an X-ray showed that it had been embedded in the uterine tissue and had perforated the wall. The Snyders asserted product liability under the consumer expectation test; that is, they claimed the product failed to perform as safely as an ordinary consumer would expect when used in an intended or reasonably foreseeable manner. While the IUD did not prevent pregnancy and perforated the uterus, the panel ruled that the Snyders could not rely on those facts because they had been adequately warned by the health-care provider and by the informed consent form included in the IUD package that both adverse effects could happen. Snyders' negligence claim against the nurse-midwife was also dismissed because the appeals court judged that there was no evidence that she breached the ordinary standard of care, or failed to show the reasonable degree of skill, knowledge and care ordinarily possessed by members of the profession under similar circumstances. This case suggests that following the protocols provides legal protection for providers and manufacturers of IUDs if not complete protection of the users' health.

Although informed consent now presumably protects the "safety" of the IUD for practitioners, fear of litigation may still be affecting the number of IUD prescriptions. An article appeared in the Pittsburgh Post-Gazette in February 2002 titled "Just Try Getting an IUD" about a woman who faced difficulty when trying to obtain an IUD from her doctor (Devoe 2002). A survey of a sampling of members of the American College of Obstetricians and Gynecologists found that the number of prescriptions written for IUDs is low -- an average of seven per year (Stanwood, et al. 2002). The survey found that physicians who reported low use of IUDs in their practices tended to believe a causal link between the method and PID and feared litigation more strongly than physicians who

reported higher usage of IUDs. The study noted that 16% of the 400 respondents "agreed that using the IUD in practice puts them at risk of litigation." The researchers concluded that educational programs that emphasize the safety of IUDs and the rarity of litigation should be developed to encourage physicians to expand their use of IUDs in practice. IUDs have strong advocates among health care providers, who believe that "misconceptions" about the IUD among clinicians may be the "barrier" to greater usage of the device. A registered nurse working at Pennsylvania's largest provider of family planning service, for instance, wrote to the editors of the Pittsburgh Post-Gazette stating that if a patient's medical history and physical examination meet the criteria of IUD protocols, her organization will provide an IUD to any woman who requests it (Devoe 2002).

When GynoPharma announced the introduction of ParaGard in 1988 after all major companies had withdrawn their IUDs from the market for several years, the company made a point of announcing that it was providing women with choice. Their advertisement in *Obstetrics and Gynecology* reads:

> The only company to offer this option (the copper-T IUD)… GynoPharma is dedicated exclusively to women's health care and is committed to meeting their changing health care needs. By introducing the ParaGard, GynoPharma is expanding options for appropriate patients. As stated by the American College of Obstetricians and Gynecologists, "…we are glad to see that women will once again have a choice."[42]

If women's choice were truly at stake, practitioners should provide the method while screening out users who may be at a higher risk of having complications with IUDs. Rehabilitation of the IUD during the late 1980s after the Dalkon Shield fallout required significant effort to ensure "safety" of IUDs both in terms of safety to the users and safety for the practitioners. Safety to users had to be resolved through a series of negotiations in

[42] GynoPharma (1988), Advertisement in *Ob/Gyn.*

scientific studies, while safety for the practitioner was addressed by informed consent. Informed consent should in principle be a practice that protects the choice of patients rather than the practitioners' liability. However, in order for IUDs to remain as a "choice" for women, American consumers are dependent on the practitioners' willingness to provide them.

The IUD as a Consumer Product

While some clinicians may be ambivalent about IUD use, pharmaceutical companies appear to have regained their confidence in the product and interest in the consumers they can reach with the product. Seeing that Gynopharma increased ParaGard sales between 1991 and 1993 by 50%[43] without a single lawsuit since 1988, Ortho-McNeil acquired GynoPharma to re-enter the IUD market with ParaGard.[44] Since GynoPharma was a small one-product company with limited marketing ability, its acquisition by Ortho-McNeil significantly broadened the range of users IUDs can potentially reach. In 2000, Berlex Laboratories, a subsidiary of German pharmaceutical company, Schering GA, introduced Mirena, the hormone-releasing IUD that had been marketed in Europe for several years. These IUDs are marketed specifically to older women with children, which is a niche in the contraceptive market that may have previously been lost to surgical sterilization.

[43] According to NY based Medicus PR, ParaGard sales increased by 50% between 1991 and 1993. Information source: Healthcare PR & Marketing News, Phillips Business Information (08/11/1994).
[44] To be more precise, its parent company Johnson & Johnson, who had been marketing IUDs overseas, but had pulled them off of the US market in the mid-1980s, re-entered the American market with the ParaGard IUD. Source: Nancy J. Kim "Drug firm back in domestic IUD market" in The Patriot Ledger Quincy, MA, page 24. (08/05/1995).

As I will detail in chapter five, one of the outcomes of the scientific efforts to reestablish the safety of IUDs was the construction of "mothers" as ideal IUD users. After several studies showed that having multiple sexual partners is linked to higher incidents of PID, presumably due to higher exposure to different pathogens and sexually transmitted infections, scientists started discouraging the use of IUDs by women who are not in mutually monogamous relationships. Younger women are assumed to have more sexual partners, while married older women are presumed to be in mutually monogamous relationships. Another assumption, namely that women who have already had children not only have uteri that better accommodate IUDs, but will be less distressed should IUD use affected their future fertility, also played a part in limiting IUD use to "mothers." During the 1970s, the nullip Dalkon Shield were inserted into many young women who had not had children, which resulted in tragic results, namely permanent sterility for many young women who had hoped to have children. In a sense, marketing IUDs only to parous women is an effort not to repeat the tragedy and the litigations that followed. At another level, targeting older "mothers" is an effective marketing segmentation. Ortho-McNeil, a major producer of the pill and other newly available hormonal methods, would prefer young women to stay on these more profitable methods. The company can hope that the copper-T IUD, which lasts 10 years and therefore is the most cost effective contraceptive method, will capture older women that would have otherwise considered surgical sterilization. There are no scientific indication that young, unmarried, nulliparous women who are at low risk of acquiring sexually transmitted infections (STI) cannot use the IUD safely. The guideline created by World Health Organization remark that benefits of IUD use can outweigh the risks for women falling under this category

(WHO 1996). American women who fall under this category, however, may encounter difficulty obtaining IUDs, a method that has been constructed as "birth control for mothers." They will be encouraged to continue ingesting, injecting, or absorbing hormones for decades.

The IUD is back on the market as "choice" for women. Despite all the tragedies the method has been responsible for in the past, it can be a good alternative for many women. This choice, however, is carefully constructed to protect not only the patients who may be at a higher health risk, but also the providers from lawsuits and the profit of pharmaceutical companies. The examination of the IUD as contraceptive choice for American women demonstrates that "choice" is not about rights of women to choose a method based on complete information. It is in fact highly mediated by the economic interests of the parties, on whom women depend to fulfill their contraceptive choices.

Chapter Four: IUD Mechanisms of Action and Antiabortion Politics

The characterization of the IUD as an abortifacient is a rhetorical move advanced by antiabortion leaders and religiously inclined physicians, who have strengthened their foothold in advancing conservative political agenda since the emergence of the New Right to power during the 1980s. Because the precise mode or mechanism of action of the IUD has not been determined despite years of scientific research, the biological reactions induced by the device have been interpreted in a conflicting manner. Scientists who have long been involved in IUD development explain that IUDs primarily exert its anti-fertility effect by preventing fertilization and maintain that the device indisputably is a *contraceptive* method. Contrarily, antiabortion organizations depict the IUD as an object that prevents pregnancy by destroying the fertilized egg. Such redefinition of the method as a form of abortion serves the purpose of discouraging women's access to contraception, which is consistent with the conservative political agenda that seeks to restrict sexual and reproductive activities to those aligned with traditional family values.

Since the early 1960s, IUD supporters have negotiated scientific representations that dissociate the method from abortion and distance the device from religious objections and antiabortion policies. This chapter brings into relief the relationship between the scientific controversy over the exact mechanism of the IUD and the political struggles over reproductive choice. More concretely, it traces the evolution of the scientific understanding of the mode of action of the IUD while highlighting the implicit link that scientific research has maintained with antiabortion politics. Furthermore, it

illustrates how IUD developers negotiated the acceptability of the device by building scientific consensus that the IUD does not "abort." The implication of their efforts is not limited to protecting their technological innovation and removing obstacles to its dissemination. Within the current conservative political climate that threatens to encroach on women's reproductive choice (both domestic and overseas), the significance of stabilizing the status of the IUD as a contraceptive method is conceived as guarding against anti-choice movements.

Preventing Implantation as Acceptable Contraception (1960s and 1970s)

How exactly does the IUD prevent pregnancy? Herbert Hall, the inventor of the stainless steel ring IUD, expressed his wonderment to his colleagues during the first international conference on the IUD, a landmark event sponsored by the Population Council in 1962 to revive professional interest in the device as an effective fertility control method. Hall stated:

> [E]ffectiveness of the intra-uterine pessary appears both impressive and puzzling. The mode of action is probably the most fascinating aspect of this method. How does this effect come about? (Hall 1962: 34).

Lazar Margulies agreed that no one has determined "what happens every month to the women with devices *in utero"* (Margulies 1962: 67). He added, however, that the broad consensus at that point in time was that "the devices prevent the implantation of the fertilized egg because the foreign body causes a discoordination of the uterus musculature" (ibid). Numerous studies on the IUD mode of action were conducted following this conference, which officially launched organized studies of the IUD on an

international scale. These studies were not only driven by scientific interest in understanding the exact anti-fertility mechanism of the device, but had important practical applications pertaining to the development of IUD models with increased efficacy and decreased side effects and health risks. The study results had political ramifications as well. IUD developers were aware that whether the IUD interferes with the fertilization phase or the implantation phase of the reproductive process would have a significant implication on the method's acceptance by certain religious communities and their political proponents.

Abortion had officially been described in 1963 by the United States Department of Health, Education and Welfare as "all the measures which impair the viability of the zygote at any time between the instant of fertilization and the completion of labor."[45] In the early 60s, however, there was not a clear consensus among physicians on whether abortion should be considered as interfering any time after the moment of fertilization, or if it only concerns terminating pregnancy after implantation. To preclude the IUD from the abortion issue, scientists and philanthropists who gathered for the international conference on the IUD suggested establishing a medical definition of conception that equates the start of pregnancy with implantation. There was a certain level of confidence that such a medical definition would influence the theological and popular notion of what constitutes abortion. Christopher Tietze commented:

> [A]t which point a human life or any life begins is a philosophical question, but I submit that throughout history the theologians and the jurists have always taken into account and have listened to the prevailing medical and biological consensus of the times, and I think this is still true. If a medical consensus develops and is maintained that pregnancy, and

[45] Public Health Services Leaflet No. 1066 U.S. Department of Health, Education and Welfare 1963 p.27 Cited in Eamon O'Dwyer, "Natural Law and Obstetrics & Gynaecology" at http://www.matercare.org/Rome/O'Dwyer.html#14)

> therefore life, begins at implantation, eventually our brethren from the other faculties will listen (Segal, et al. 1965: 213).

Alan Guttmacher concurred and read aloud to the conference audience from a 1962 pamphlet of the British Council of Churches as an example of a religious group that agreed with the definition suggested by Tietze. The pamphlet stated that:

> [The British Council of Churches'] conclusion was that a distinction must be drawn between biological life and human life, and that in the absence of more precise knowledge, nidation may most conveniently be assumed to be the point at which the former becomes the latter. We agree that abortion as a means of family limitation is to be condemned. But a woman cannot abort until the fertilized egg cell has nidated and thus becomes attached to her body… we see no objection… to the use of a technique which would prevent implantation. Such a method, which might be described as contra-nidation, could also quite properly be called contraception.[46]

The following year, the American College of Obstetricians and Gynecologists defined "conception" as the implantation of a fertilized ovum.[47] Since under this medical definition of conception, abortion cannot occur until the fertilized egg is implanted, IUD developers were relieved of the burden of having to address the abortion issue in their research and development.

Even after disassociating conception from fertilization in the medical definition, doctors had to take into consideration IUD users who might object to a method that interferes with the implantation of the fertilized egg. Hugh Davis, the inventor of the Dalkon Shield IUD and a strong IUD proponent, suggested physicians give this answer to clients who inquire about how the device works:

> The IUD prevents pregnancy by preventing conception. The device inside the womb arouses natural body defenses which cause the eggs and seed to dissolve and pass away as they do normally before the period comes (Davis 1971: 123).

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[46] "Human Reproduction: a study of some emergent problems and questions in the light of the Christian faith,": *44-45. British Council of Churches,* London, *1962* quoted by (p.216, 1964).
[47] American College of Obstetrics and Gynecology Terminology Bulletin – Terms used in Reference to the Fetus, Chicago, A.C.O.G. September 1965. Cited in O'Dwyer, *see footnote 3*.

Davis avoids using the specific terms, "fertilization" and "implantation," and thereby evades clarifying the exact point of the reproductive process at which the IUD intervenes. Providing ambiguous explanations to clients may have been one way the abortion question was skirted in a clinical setting during the 1960s and 70s.

The medical redefinition of conception, however, was sufficient to give a green light to the development of the IUD as a method of contraception. There was also strong overall social support for the development and dissemination of a new contraceptive method during the 1960s and 70s. Population control gained more awareness from Americans as a necessity for economic, political, and environmental stability. The United States Agency of International Development (USAID) began providing funding for contraceptive research and supplies for distribution in developing countries becoming the world's foremost program in the field providing more than half of all international population program assistance.[48] Although the IUD was no longer considered a panacea for the population problem, it was still a desirable method in the eyes of family planning advocates and governments overseas.[49] The U.S. domestic social climate was also favorable to the development of the IUD as a new contraceptive method. Strong social movements promoting women's health, sexual freedom, and reproductive choice welcomed new fertility control methods.[50] The popularization of the pill raised women's expectations for acquiring reliable contraceptive methods from their physicians, while the fear of the pill's health risks increased the demand for alternative fertility control

[48] R.T. Ravenholt "Pronatalist Zealotry and Population Pressure Conflicts: How Catholics Seized Control of U.S. Family Planning Programs" Presented to the Annual Meeting of the Washington State Chapter of Zero Population Growth, Inc., at Seattle, March 4, 1991. http://www.population-security.org/rave3-91-03.htm

[49] This aspect is discussed in chapter two.

[50] As is exemplified by the publication of "Our Bodies, Our Selves"

methods.[51] The legalization of abortion through the 1973 *Roe v. Wade* Supreme Court decision strengthened the liberal agenda that supports women's reproductive choices. In this general social and political climate, IUD research progressed steadily. Plastic or inert IUDs were tested and widely distributed during the 1960s, followed by the development of the copper-bearing and hormone-releasing IUDs during the 1970s. After the Dalkon Shield fallout in the mid-1970s, health risks associated with the IUD became an important focus of IUD research.

Research on IUD mode of action continued during the 1960s and 70s, motivated to a great extent by the desire to find an ideal configuration of the IUD that maximizes effectiveness and minimizes expulsion and side effects. The 1975 Population Reports on the IUD, which summarized the development of the device to date, indicates that the most widely accepted theory at that time was that the IUD acts post-fertilization. "Generally," the authors note, "IUDs seem to interfere in some manner with the implantation of the fertilized egg in the endometirum – possibly through nonspecific inflammatory cell reaction occurring within the uterine cavity" (Population Reports 1975: 25). By the time a follow-up report was published in 1979, new studies suggested that IUDs induce foreign body reactions of the white blood cells, which engulf the sperms and fertilized ovum (Population Reports 1979). The original theory that the IUD creates an endometrium inhospitable to implantation was retained as an alternative explanation to the spermicidal/ovumcidal action, but was no longer considered the most significant mechanism of action. The exact same descriptions appear in the 1982 report, indicating

[51] IUD advocates such as Hugh Davis perceived the pill controversy as an opportunity to promote the IUD. Women who have used the IUD during the 1970s have personally communicated to me that they have made a conscious decision to try the IUD because they had side effects from the pill or because they were worried about its long-term health effects.

that the scientific community paid little attention to IUD mode of action during the late 1970s and early 1980s (Population Reports 1982). Scientists' attention was presumably diverted from studying the precise mechanism of the IUD because there were other pressing research agenda such as the testing of the copper-bearing devices and establishing safety standards, but more significantly because there was little political pressure to specify whether or not the method prevented fertilization.

The Rise of the Conservatives to Power in the 1980s

Abortion was legalized in 1973 in the U.S. and American abortion rates and contraception usage rose during the 1970s, giving the impression that emancipated women and feminist ideals were being embraced by society in general. In the meantime, however, religious groups and political conservatives were building their power base to restrict abortion practices both legally and ideologically. During the late 1970s and early 1980s, the New Right significantly increased its electoral power by attracting Christian evangelical votes through the "pro-life" lobbying groups (Mason 2002). The New Right stopped merely protesting abortion and started using the "pro-life" banner to promote a complete set of conservative principles. Central to the New Right's political agenda was the restoration of the traditional patriarchal family system and sexual morality, which was contingent upon the reversal of the 15 years of politically liberal achievements including the legalization of abortion and the efforts to push for gay rights and the Equal Rights Amendment. In short, the 1980s was marked by "the antiabortion, antigay, anti-ERA, and pro-family current" in the U.S. political scene that rose as "a backlash movement to

turn back the tide of the major social movements of the 1960s and 1970s" (Petchesky 1984: 246).

By the 1980s, the antiabortion movement had also acquired a new rhetoric. It departed from the Right-to-Life activists' rhetoric that appealed to "saving human life" and started to frame abortion more detestably as "murder" or "baby killing." Carol Mason (2002) argues that this new discourse rose against the backdrop of losing the Vietnam War and approaching the millennium. She explains that the psychological trauma caused by the war in Vietnam had the effect of turning Americans to a new battlefield that would help recover their masculinity. The new battlefield that replaced Vietnam was the womb, and stopping "baby killers" became the new war that some Americans became determined to win in order to escape God's wrath that they believed was going to strike at the new millennium. The apocalyptic notion of abortion as a sin that must be stopped to achieve revelation consequently generated anti-abortion movements that resorted to more violence. Further, the religious framing of the antiabortion movement provided the New Right with an opportunity to justify its cause through moral absolutism. Rosalind Petchesky (1984) contends that abortion represented "all the satanic evils the right seeks…to destroy (communists, feminists, homosexuals, liberal welfare advocates)" and the fetus symbolized "the pristine and the innocent, which must be protected and saved (family, children, God, the American way)" (245).

In alliance with right-wing politics was a deep-seated opposition to contraception, especially among conservative Catholic Americans. The term "contraceptive mentality" has been used to condemn the assertion of "power to control and manipulate the production of human life" as contrary to God's will (Mason 2002: 142). When the

American abortion rate escalated throughout the late seventies, some conservative Catholics became increasingly more convinced that contraception was significantly to blame for the increase in abortion.[52] Antiabortion extremists believe that "contraceptive mentality" encourages abortion because it supposedly leads to teenage promiscuity and sexual immorality and blame contraceptive use in general as the source of the problem. Considering these anti-contraception sentiments, the antiabortion movement can no longer be understood as a conflict over when life begins and whether abortion terminates "life," but needs to be critically examined within the political context of sexual behavior and patriarchal control. The abortion issue is used as the façade by the politically conservative to pursue fundamental changes to preserve the traditional nuclear family, which include curtailing sex education, suppressing teenage sexuality and autonomy, and restricting the reproductive freedom of women. Their goal is not to repress sex altogether, but the focus is on "rechanneling of sexuality into patriarchally legitimate forms, those that reinforce heterosexual marriage and motherhood" (Petchesky 1984: 264).

The mid-1980s marked a time when international family planning supporters felt the political tide turn against them. The antiabortion and pro-family conservative politics of the New Right were not only advancing to put pressure on domestic abortion practices, but were also encroaching on birth control services that they had helped promote for the last two decades. For the conservative constituency, who attempted unsuccessfully to turn over the legalized right to abortion, the Third World provided a new frontier to pursue its antiabortion and anti-reproductive-rights agenda. During the mid-1970s,

[52] Mason (2002) footnote 40, page226.

Catholic leaders convinced President Carter to appoint Catholics to executive positions within USAID, who subsequently dissolved its Office of Population.[53] More campaigns by antiabortion groups and other members of the New Right against U.S. involvement in international population policy and family planning assistance had begun around 1980 (Crane and Finkile 1989). Around 1983, those opposed to providing overseas aids related to fertility control services and policies started arguing that U.S. funds designated for voluntary family planning should be withdrawn from governments and organizations if it could be demonstrated that they were involved in abortion or coercive practices such as involuntary sterilization. They based their argument on the fungibility of the funds, meaning that there is no reliable way to assure that U.S. funds would not be used for abortion once they were given to organizations that obtain funds from other sources to support abortion (ibid).

The conservative constituency's endeavor to curtail the American involvement in promoting reproductive choice abroad came to fruition in 1984, when the U.S. government threw its weight about internationally by instituting the Mexico City Policy, also known as the Global Gag Rule. President Reagan's delegation to the 1984 United Nations Conference on Population at Mexico City announced that the country would no longer provide funds to any agency that provided abortion services, counseling, or referrals. This new policy completely reversed the pro-family planning position the U.S. had followed for the past decade and a half and came as a serious setback to those who relied on American aid to improve much needed birth control services in the developing world. It forced organizations to give up all references to abortion (i.e. be gagged) or

[53] Ravenholt (1991), *footnote 6.*

endure financial difficulties that impacted not only their activities concerning abortion, but also birth control services. The following year, the U.S. abruptly ceased funding to the United Nations Population Funds (UNFPA) accusing the organization of supporting coercive population policy in China. U.S. policy makers cited the moral implication of supporting abortion and coercive practices as the reason for the withdrawal of funding. Yet, the decision disregards the financial constraint it would impose on organizations working to improve women's access to contraceptive methods.

Sheldon Segal, a veteran scientist in contraceptive development and the winner of the U.N. Population Award at Mexico City, recounts an episode that happened just after James Buckley, the head of the U.S. delegation to the Mexico City conference, announced the Global Gag Rule (Segal 2002).[54] The audience was leaving the meeting room as an American television anchorman interviewed Faye Wattleton, then president of Planned Parenthood Federation of America, who expressed her dismay in the new policy that did not represent the American view at large. As Segal watched, John Willke, a significant figure in the antiabortion movement elbowed his way in front of the camera.[55] When the anchorman asked if he was satisfied with the U.S. position paper, Willke answered, "it was a good first step." The reporter then asked what the *next* step was. Willke, who also is known to be a physician, replied: "Now the United States has to stop all those abortions caused by contraceptives, like the pill and the IUD" (ibid: xxiv). The same anchorman interviewed Segal, who raised an objection to Willke's statement in front of the TV camera. Segal describes the exchange as follows:

[54] This story was also communicated to the author during a phone interview with Sheldon Segal (June 2003).
[55] Segal (2002) refers to Willke as "a leader of the abortion movement." Sheldon Segal identified the person as John Willke in a personal communication with the author (June 2003).

> When I was asked to comment, I did not hesitate to say that [Willke's] statement astonished me, not only because of its lack of scientific credibility, but because it revealed the true extent of his opposition to women's reproductive rights. It did not stop at abortion. It included contraception as well. (Segal 2002: xxiv)

Whether this incident directly motivated Segal to conduct a renewed study on the IUD, I can only speculate. But, as a Population Council scientist who dedicated his career to contraceptive development and distribution, Segal must have felt compelled to respond to antiabortionists' attack on the IUD. The following year, Segal and his colleagues published the first of a series of scientific reports that concludes that IUDs do not work by aborting embryos. What was at stake was not merely whether or not the IUD works by aborting, however. The conservative political agenda, while positioning opposition against abortion at the forefront, was insidiously threatening to encroach on the realm of contraception, first by restraining family planning aid and then by encompassing contraceptive methods into antiabortion measures. Strengthening scientific research that refutes the construction of the IUD as an abortifacient and justifying it as a contraceptive method suddenly became an imperative for IUD supporters in the conservative political climate of the mid-1980s.

Defending the IUD: "IUDs Are Not Abortifacients"

Following the Mexico City conference, the time was ripe for renewed studies of IUD mode of action.[56] Supporters of the IUD understood that the attack on the device as an

[56] I am mainly referring to the social and political circumstances of the mid-1980s. However, renewed IUD studies were a reasonable thing to pursue for "scientific" interest, considering scientific developments that were happening in related areas. For instance, new studies of hormone levels in IUD users were made possible since a new technology to detect small amounts of hormones in blood sample was made available around this time. Studies were conducted on the Norplant mechanism of action, which may have motivated similar studies on the IUD.

abortifacient was based on the early theory, which supposed that the IUD worked at the uterine level, namely by prohibiting a developing embryo from implanting itself on the uterine wall. Scientists who had kept up with IUD research knew that the anti-implantation mechanism was probably not the only mode of action: studies conducted during the 1970s had suggested that the IUD created an environment inhospitable for sperm and ovum survival. The image that the IUD exerts its antifertility effect by interfering with implantation of the fertilized egg, however, had become so widespread that it could only be overturned by new scientific studies that show more definitively that IUDs work in some other way. Scientists who embarked on the mission to rescue the IUD from its early theory interpreted their crucial task to be establishing that there was nothing that can be called embryonic development in IUD users. As one group of researchers put it:

> A widely accepted concept is that a preimplantation embryo entering [a uterine environment profoundly altered during IUD use] is unlikely to survive…If this mode of action of IUDs was responsible for preventing most of the pregnancies in the women, it follows that embryos should develop normally before they enter the uterine cavity and should enter the cavity at a frequency comparable to that observed in non-IUD users. Furthermore, they should be physically present within the uterine cavity for some time before they are lost. (Alvarez, et al. 1988: 768).

In other words, IUD supporters presumed that if studies demonstrate that the IUD interrupted the reproductive process at a much earlier phase, then the method will be exempt from the blame of aborting developing embryos. Based on this premise, scientists looked for signs of developing embryos in IUD users using three different approaches. The first set of studies searched for substances presumed to be specifically produced by embryos. These resemble highly sensitive pregnancy tests, and were conducted on blood and urine samples from IUD users and control groups. The second set of studies searched for sperms and eggs in the female genital tract to assess the impact

of the IUD on gamete survival and migration. While this approach did not look for the existence of embryos *per se,* it accounted for the likelihood of normal fertilization and development process. The third set of studies conducted microscopic observation of ova recovered from IUD users to see if there was any indication of embryonic development. During the mid-1980s, new research as well as reviews of existing studies on IUD mode of action were published. Not surprisingly, a number of them were authored by scientists affiliated with the Population Council.

The first of those studies was the one conducted by Segal and his affiliates in the Dominican Republic shortly after the Mexico City conference (Segal et al. 1985). They measured daily hormone levels in IUD users and control groups to see if there were signs of the human chorionic gonadotropin (hCG) increase in IUD users.[57] The hCG is produced by the fertilized egg and becomes detectable in the mother's blood and urine around the time of implantation, or about seven days after fertilization (Wilcox, et al. 1987). Some past studies had detected hCG in IUD users, suggesting that there may be early embryonic development. The goal of Segal's study was to show that these studies may have given false-positive results by mistaking pre-ovulatory hCG secretion for hCG produced by developing embryos. By collecting daily blood samples from 30 IUD users for one menstrual cycle, Segal et al. (1985) showed that a few women produced detectable amounts of hCG before ovulation, while none of them did so after the fertile phase. The study concludes that past studies detecting hCG in IUD users had most likely found pre-ovulatory hCG and mistook it for the sign of blastocyst development.

[57] 30 IUD users, 30 sterilized women, and 15 women trying to conceive had daily blood examinations to observe hormone level changes during one menstrual cycle.

The authors recognize that their observation "cannot elucidate events of the few days after fertilization before the initiation of hCG production by the developing blastocyst"(Segal, et al. 1985: 218). They argue, nevertheless, that "this brief period has never been implicated in the antifertility effect of IUDs in women" (ibid) suggesting that as long as no developing embryo is found, the anti-implantation theory of IUD mode of action can be dismissed. They conclude:

> Indeed, there would be no known way, short of visualizing the fertilized egg itself, to demonstrate the existence of pregnancy before the presence of detectable levels of hCG. This study demonstrates, on the basis of the presence or absence of hCG in the maternal blood, that women who use IUDs do not retain a natural rate of fertility, and that IUDs *do not act as abortifacients* (ibid, emphasis added)

A follow-up study of hCG detection conducted by a team of researchers at Columbia University detected one temporary surge in post-ovulatory hCG among 107 menstrual cycles of IUD users, which they interpreted as a sign of early pregnancy and embryonic loss (Wilcox, et al. 1987). Comparable signs of early embryonic development that did not lead to actual pregnancy were found at a rate five times higher in non-contraceptive users. The researchers concluded that the IUD does not act as a post-implantation abortifacient except for 1% per cycle. Conclusions drawn from the study reemphasizes the point made previously that: "IUD has its primary effect before hCG becomes detectable in the urine. Whatever the IUD's specific mechanism of action, it appears that the IUD effectively interrupts the reproductive process before implantation" (ibid: 268). The argument in these studies is carefully crafted. Researchers are well aware that the hCG detection method can only tell whether or not a blastocyst matures enough to produce detectable amount of hCG, not whether a sperm fertilizes the egg.

The studies claim to disprove that IUDs abort a developing embryo in the uterus, and they do exactly that.

Ortiz, et al. (1987) reviewed studies conducted during the 1970s and early 80s concerning IUD effects on sperm motility and survival. Some studies indicate that sperms do not reach the tubes where they fertilize the eggs either at all or at a normal speed. Others observed that spermatozoa are phagocytized, or engulfed by white blood cells, in the endometrial cavity of IUD users. Many sperms were found with their heads and tails separated. Researchers attributed these conditions to the increased number of leukocytes and sperms destroyed through phagocytosis as well as through the cytotoxic or spermicidal effect of copper (Sivin 1989). Observations of sperms suggest that while the presence of an IUD does not prevent migration of spermatozoa to the fallopian tubes altogether, sperms are less likely to reach the normal site of fertilization in the same number as in non-IUD users. These findings, however, do not tell conclusively whether or not fertilization takes place; whether or not spermatozoa reach the fertilization site in sufficient numbers or maintain their fertilizing capacity intact remain unknown.

Three years after Segal, et al. (1985) concluded that visual observation of the eggs is necessary to assess whether or not the ova were fertilized, the second author of the article conducted a microscopic study of eggs recovered from IUD users and non-contraceptive users (Alvarez, et al. 1988).[58] Twenty-one eggs were recovered from controls and 14 from IUD users who had had intercourse during the fertile period. Half

[58] This study was partly funded by the Population Council. They studied 115 women using no contraception and 56 women using IUDs. All these women gave daily first-morning urine samples to confirm the day of ovulation. They also had their cervix observed microscopically daily after the ninth day into their menstrual cycle to check for sperm existence. The women went under surgical sterilization between 37 and 132 hours following ovulation. During the procedure their uteri and fallopian tubes were flushed and the flushing was searched for eggs.

of the control group showed that fertilization had taken place and the eggs were developing normally. Nine out of the14 eggs recovered from IUD users showed no development, suggesting that these eggs were not fertilized. None of the IUD users exhibited clear sign of fertilization and normal development. The remaining five eggs from IUD users were categorized as showing abnormal or uncertain development. These eggs could have either undergone fragmentation after being fertilized or degenerated unfertilized. The study also showed that recovery rate of eggs (fertilized or not) from controls were substantially higher than copper-IUD users (56% versus 30%). These results suggest that IUDs contributed to generating a uterine and fallopian tube environment that impact both egg survival and successful fertilization/development. In line with previous studies, Alvarez et al. maintain that "IUDs exert effects that extend beyond the body of the uterus and interfere with steps of the reproductive process that take place anatomically and temporally before the eggs reach the uterine cavity" (772).

Hundreds of women, many of them from the Third World, volunteered to submit themselves to a daily regimen of urine/blood collection and cervical exams.[59] More than 150 women who went through surgical sterilization donated the contents of their uterus and fallopian tubes so that they could be searched for sperms and eggs. These women have given their time and bodies, not only to advance scientific understanding of the contraceptive method, but also to settle a dispute that was driven by the American conservative political pressure to undercut reproductive choice. Their participation has made it possible for researchers to build a tenable case that chances of fertilization are

[59] Just to summarize the works that I have cited in this chapter: for Segal, et al. (1985), 75 women from the Dominican Republic provided daily blood samples for one menstrual cycle; for Wilcox, et al. (1987), 40 American women collected daily first-morning urine samples for three months; and for Alvarez (1988), 171 women from the Dominica Republic and Chile went under daily urine samples and cervical exams before receiving surgical sterilization.

significantly reduced with IUD use, although these studies cannot (and do not) claim that fertilization never happens in IUD users. Today the mainstream scientific theory on IUD mode of action adopts the view that the environmental changes in the uterus and fallopian tubes induced by the device affects not only the implantation phase, but also the fertilization process by impacting gamete migration and survival.[60]

To IUD supporters' dismay and despite these new studies, the anti-implantation *image* of IUDs had permeated so widely that even people who are "pro-choice" continued to subscribe to it. In the 1988 *Webster v. Reproductive Health Services* ruling, which upheld the Missouri legislation that prohibits the use of public employees and buildings for performing or assisting in abortions, Justice John Paul Stevens argued his case against the provision stating that it unconstitutionally burdens users of IUDs and morning-after pills. Justice Stevens was making his statement with the understanding that the IUD and the morning-after pill functioned after fertilization. He asserted that since the state of Missouri "defines fetal life as beginning upon the fertilization of the ovum of a female by a sperm of a male," restrictive measures on abortion by implication would be applied to these particular contraceptive methods that "may operate to prevent pregnancy only after conception as defined in the statue,"[61] unconstitutionally interfering with

[60] The Statement on Contraceptive Methods issued by the American College of Obstetricians and Gynecologists in 1998 states that: "Two IUDs are currently available in the United States; one releases the hormone progesterone and the other releases copper. Progesterone release causes thickened cervical mucus that blocks sperm transport; the release of copper alter fluids in the Fallopian tubes and uterus in a way that interferes with sperm and egg transport and function. Both can act by inhibiting fertilization, which is considered their primary mechanism of action. In addition, both also alter the lining of the uterus in a way that may be unfavorable for implantation; this effect is probably responsible for the high level of efficacy when copper IUD insertion is used for emergency contraception."

[61] Justice John Paul Stevens, April 1998. U.S. SUPREME COURT, WEBSTER v. REPRODUCTIVE HEALTH SERVICES, 492 U.S. 490 (1989) Full text found at: http://www.tourolaw.edu/patch/Webster/Stevens.htm

contraceptive choices. While clearly opposing an anti-choice legislation, Justice Stevens inadvertently linked the IUD to abortion in a public statement. Soon after this event, as if to try to put an end to the mischaracterization of the IUDs as abortifacient, Irvin Sivin of the Population Council published an article titled "IUDs are Contraceptives, Not Abortifacients," in which he called the anti-implantation theory of the IUD a "social myth" (Sivin 1989: 355)

The Battle over Pre- versus Post-fertilization Theories

Conducting a study on women to ascertain that fertilization never happens with IUD use is virtually impossible. Those who defend the IUD have been obliged to focus on refuting the existence of developing embryos and disassociating the discussion from disproving fertilization, while carefully defining abortion as interrupting implantation. Meanwhile, antiabortionists cling to the definition of abortion as post-fertilization interruption and insist that if fertilization takes place at all in IUD users, the device is an abortifacient. Despite the tireless effort by Population Council scientists to disseminate the view that the IUD should not be characterized as an abortificient, antiabortionists, religious leaders and political conservatives have been persistent with their attack on the device. Some blatantly mischaracterize the IUD to lure religious women away from the method, while others ground their arguments on the small potential that it occasionally allows fertilization to take place.

The definition of "conception" is where the opposition begins. Today in the year 2003, antiabortion organizations maintain that the medical definition of "conception" was virtually a conspiracy by the American College of Obstetricians and Gynecologists

(ACOG) to gain acceptability of contraceptive methods. The Life Issues Institute website states:

> In the early 1960's, officials from the American College of Obstetrics and Gynecology teamed up with the U.S. Food and Drug Administration, and they simply redefined the word "conception."! They said it would no longer be the time of union of sperm and ovum, but rather would be the time, one week later, when this new human plants inside the lining of the mother's womb.! "Fertilization" would still be the word used for the time of union of sperm and ovum.! The interesting thing was though that no one knew of this change except an inner circle of medical and drug people.! And so what has happened?! Well, just what they planned.!!!!
>
> Today a physician can truthfully call the IUD a "contraceptive," and mean that it prevents implantation in the wall of the uterus, while his patient, hearing him use the word, "contraception," will understand it to mean "the prevention of the union of sperm and ovum."! And so, presto!! An abortifacient is called a "contraceptive," and everybody is fooled.! A classic example of double speak, or the perversion of language.[62]

Another antiabortion organization extends the argument to cover all medical contraceptive methods:

> The hidden agenda in ACOG's redefinition of "contraceptive" was to blur the distinction between agents preventing fertilization and those preventing implantation of the week-old embryo. Specifically, abortifacients such as IUDs, combination pills, minipills, progestin-only pills, injectables such as Pro-vera and, more recently, implantables such as Norplant, all are contraceptives by this definition.[63]

Disturbingly enough, some states join antiabortion organizations in adopting the definition of “conception” as joining of the egg and sperm. State legislation that constricts abortion services, such as the one in Missouri, threatens to extend its restrictions to contraceptive services if the methods could be classified as abortive. Pro-choice scientists’ works are increasingly important in attenuating the associations made between contraceptive methods and abortion and protecting contraceptive services from anti-choice policies.

[62] http://www.lifeissues.org/abortifacients
[63] http://www.lifeadvocate.org/mar_97/wars.html

Pro-choice scientists may be hoping that the "scientific" argument that establishes IUD as a contraceptive method will suffice to bring people to reason. Antiabortion leaders, however, plainly discourage IUD use, either by never citing or distorting scientific findings in their favor. They appeal emotionally to their followers' morality by graphically portraying the "abortion" process that the IUD allegedly induces. John Willke for instance, advertises on the Life Issues Institute website upon which he reigns as the specialist:

> Most scientific papers have agreed that in as many as 95 percent of the cases [the IUD] does not prevent fertilization.! What it does do is prevent the implantation, at one week of life, of the tiny new human into the nutrient lining of the mother's womb.! Because with that in place, this little boy or girl cannot implant, he or she dies and passes from the mother's body.! So, even though your doctor may call an IUD a contraceptive, remember, it does not prevent fertilization.! It does cause the death of the tiny new human at one week of life in a micro-abortion, and for this reason, few Christian women will allow one to be inserted into them.[64]!!!!

As one might expect from a physician, Willke makes a distinction between inert IUDs and copper-releasing ones, only to underscore the different ways in which IUDs commit "murder":

> Most IUDs are simple plastic devices that prevent implantation because their presence, in the womb, as a foreign body, damages and changes the lining of the womb.! They may also work by poisoning the tiny human with the macrophage screen, or sterile pus that its presence produces.! But the Copper-T is a bit different.! It also is a plastic device, but the coiled plastic rod is tightly wound with a thin copper wire.! Apparently some of the copper leaches or rusts off at a fairly steady rate inside of the womb and this may act as a low-grade poison, which helps to kill the tiny new human.[65]!!!!

In addition, Willke intimidates readers who might consider using the IUD by exaggerating the risk of infection and infertility associated with the device. While acknowledging that the Dalkon Shield has been the largest source of IUD related injuries, he calls the Copper-T its "cousin," and asserts that infections are "apparently caused by

[64] http://www.lifeissues.org/abortifacients/IUD.html
[65] Ibid.

[the Dalkon Shield] and other types of IUDs." After describing the process by which uterine infections travel to the fallopian tubes and the tubes at times "become badly damaged" and sometimes "scar shut" leaving the woman "sterile for life," Willke assures that IUDs are common health hazards. "I tell you," he writes, "I've seen it again and again through my years of being a physician. When we go against nature, sooner or later we pay the price."[66] In this last statement and in the next quote, he postulates that if women go against nature (or "God"), they will suffer the consequences:

> How did these infections occur?! Well, the womb was made to have only one object inside of it.! That object is called a baby.! And that arrangement has been working quite well.! The IUD is a foreign body that just doesn't belong there.![…] and that's what produces the problem.[67]!!!!

While Willke does not use the term "contraceptive mentality," his a deep-seated opposition against women controlling their own fertility underlies his assertions.

Appeals to religious and moral consciousness obscures the ramifications of Willke's antiabortion campaign, namely, the disqualification of the IUD as a contraceptive method and the resulting narrowing of women's reproductive choice. Zealous attempts to eliminate all "abortions" become indistinguishable from a quest to invalidate as many contraceptive methods as possible, siding with the political agenda to restore patriarchal order. Willke's rhetoric, which manipulates the reader's moral perception of the blastocyst by referring to it as the "tiny new human," may be easy to dismiss as extremist and obviously skewed by his hyper-religious view. His fundamental position, however, is shared by a number of physicians, who hope to influence their colleagues' views by publishing in major medical journals. When professional physicians frame their objections to the IUD as scientific and as a conscientious motion made for

[66] Ibid.
[67] Ibid.

their patients' wellbeing, it becomes more difficult to discern where their intentions lie. Their writings, however, stand out oddly because they overemphasize the aspect that post-fertilization action cannot be completely ruled out. In addition, they stress that informing the patient of every aspect of the contraceptive method is a physician's obligation in order not to betray women who have religious and moral objections to post-fertilization methods.

Joseph A. Spinnato, for instance, presents his main arguments as follows in his 1997 article in the American Journal of Obstetrics and Gynecology:

> (1) that substantial evidence exists supporting inhibition of implantation as a significant mechanism of action of the IUD and (2) that the prescription or marketing of IUDs that consciously understates or omits the likelihood of number 1 is deceptive and fails current standards of informed consent (Spinnato 1997: 503).

That the IUD is an abortifacient is clearly implicated in the four moves that Spinnato makes. First of all, he sneaks in the notion that the IUD's "mechanism is to prevent or quickly abort implantation"(ibid: 504), referring to its post-coital use as emergency contraception. Although the post-coital application of IUDs has been discussed sparsely since the 1970s, the method is not regularly used as emergency contraception. Secondly, he undermines, reinterprets, or otherwise ignores existing studies that suggest that the IUD's primary mode of anti-fertility action precedes fertilization and argues that "there is not satisfactory evidence to conclude that a spermicidal prevention of fertilization is the exclusive method of action of IUDs" (ibid: 505). For instance, he dismisses the microscopic studies of eggs discussed in Alvarez, et al. (1988) maintaining that the timing of egg recovery was uncontrolled, numbers of subjects were too small, and 36% of the ova retrieved from IUD users was unclassified. Spinnato contends that studies supporting dominant spermicidal effect of IUDs are "surprisingly weak" while he asserts

that "substantial evidence exists supporting inhibition of implantation as a significant mechanism of action of the IUD" (ibid). He expresses his discontent towards recent reviews and gynecologic texts that refute, minimize or do not mention interference with implantation when discussing mechanisms of action. He himself, however, inflates the probability that the method works post-fertilization without referencing mainstream reviews of IUD mode of action that suggest otherwise.

Thirdy, he uses "women's choice" and full disclosure/consent as the underpinning of his objection against not acknowledging the possibility of post-fertilization action of IUDs. He stresses that "beginnings-of-life moral and religious considerations" (ibid: 503) might affect "a woman's choice" of contraception. He appears to be projecting his own religious objections to IUD use on women, whom he constructs as a patient who may experience "potential psychologic [*sic*] consequences of uninformed consent" including "guilt, anger, depression, and a sense that she has been violated by the provider" (ibid: 505) if she subsequently learns of a postfertilization action. Granted that women who object to post-fertilization contraception deserve to be informed of methods that clearly operate in this mode, Spinnato's characterization of IUD mode of action as predominantly anti-implantation is equally misleading to women. The article clearly serves his interest in making sure that women who may object to post-fertilization contraception would not choose the IUD, but does not represent a balanced report on IUD mode of action.

Finally, he insinuates that "information is deliberately withheld or misstated regarding the action of IUDs," leading to "an unethical deception" (ibid: 505) both for

users and healthcare providers in the Third World who may have religious objections to using or providing a contraceptive method that acts after fertilization. He writes:

> There are global applications in less educated populations; the potential exists that the understating of the postfertilization action of IUDs permits health care providers to skirt the issue and apply IUDs to populations who might otherwise reject them. When minimally trained personnel are used to insert IUDs, their own autonomy may be corrupted if the same misinformation is given to them (ibid).

"It may be unjust," he asserts, "to suspend the requirements of informed consent in [developing] countries" (ibid). Using respect for "women's choice" and the "autonomy" of the users and healthcare providers to legitimate his position, Spinnato attempts to redefine the IUD as a post-fertilization method for international family planning operations in the developing world, where the majority of IUD users reside.

Sheldon Segal promptly stepped up to rebut Spinnato's claims. In his letter to the editor of the American Journal of Obstetrics and Gynecology, Segal points out that Spinnato selectively reviewed past studies and ignored key articles, including Croxatto, et al. (1994), which reviewed more than 100 studies on IUD mode of action. Criticizing Spinnato, Segal concludes:

> It cannot escape a reader's attention that the Spinnato article brings the IUD into the abortion debate in the United States. Without introducing new data, it concludes that contraceptive IUDs act after fertilization, implying that they could be classified as abortifacients, although there is no factual basis for this categorization. IUD use has been studied by every available scientific method – sperm migration, highly sensitive human chorionic gonadotropin determinations, ultrasonographic visualization, and ovum recovery studies – to determine whether they may work after fertilization. The data from these studies fail to provide evidence of fertilization and early development in routine users of copper-bearing IUDs (Segal 1997: 980).

In spite of all, anti-IUD physicians continue to find allies within their profession, and the controversy is carried on involving physicians whose affiliations with the Population Council or antiabortion groups are not necessarily apparent. In his article "Appropriate Use of the Intrauterine Device" published in *American Family Physician,*

Timothy Canavan (1998) stated that "it is important for the patient to understand that the IUD does not appear to be an abortifacient, but rather, prevents conception." Another physician, Walter L. Larimore, criticizes this as a misleading statement in his letter to the editor (Larimore 1998). Citing Spinnato's article, Larimore remarks that there is not enough evidence that fertilization is completely omitted and that therefore it would be violating the female patient's autonomy if this information were withheld. In his response to the letter, Canavan dissents Larimore, maintaining that the risk of post-fertilization action is so remote that it is not worthwhile mentioning it to patients just as making reference to the remote chance of death when performing a routine surgical procedure is an overkill. The editors of *American Family Physician* decided that the issue is so emotionally charged that the electronic version of the patient education handout on the IUD needed to be modified to acknowledge the controversy. They added that the IUD may cause "the thinning of the lining of the uterine wall,"[68] which has become a euphemism for "preventing implantation."

Pharmaceutical companies today carefully walk the fine line of fulfilling informed consent requirements and marketing an acceptable product. The possibility of IUD's anti-implantation effect is mentioned somewhere in the document that patients receive during the informed consent procedure either explicitly or by referring to it with the euphemism. The ParaGard Copper-T IUD patient brochure states that:

> As with birth control pills, there is no single explanation for how IUDs work. Studies have shown that the presence of an IUD interferes with the movement of sperm, fertilization of eggs, and implantation.[69]

[68] http://www.aafp.org/

[69] "Today's Intrauterine Copper Contraceptive: The Convenient Contraceptive Solution" (1998) Ortho-McNeil Pharmaceutical Inc. The Patient Package Insert (also printed by Ortho-McNeil in 1998) similarly states that "How the ParaGard , T 380A prevents pregnancy is not completely understood at the present time. Several theories have been suggested, including interference with sperm transport, fertilization, and

The Mirena hormone-releasing IUD package insert is worded as follows:

> There is no single explanation of how Mirena works. […] It may block sperm from reaching or fertilizing your egg. It may make the lining of your uterus thin. We do not know which of these actions is most important for preventing pregnancy and most likely all of them work together.[70]

That the IUD may allow fertilization in rare cases certainly is not advertised and is often glossed over on the pharmaceutical companies' product websites.[71] The patient handout given to a Copper-T user at the Planned Parenthood in Virginia actually states: "the IUD works by causing abortion" is one of the common myths about the IUD.[72]

Anti-IUD physicians negotiate the rightfulness of their concern by appealing to the consequences of not acknowledging all possible modes of action to their patients in terms of full disclosure, informed consent, and "women's right to choose" a contraceptive method that does not disagree with their morality. They maintain that their patients deserve to be informed of all aspects of the medical device no matter how remote the possibility of the risk; otherwise their patients' autonomy is compromised. These physicians' "consideration" for women, however, is suspect, considering the partiality of the information that they insist on disclosing. Curiously, the reproductive phase in question is a narrow time frame that normally passes virtually unnoticed. In normal circumstances, pregnancy resumes and progresses unconfirmed until the mother misses her period two weeks or so after fertilization. There is no efficient clinical means today

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implantation. Clinical studies with copper-bearing IUDs suggest that fertilization is affected either due to an altered number or lack of viability of spermatozoa."

[70] "Patient Information MIRENA, " (2000) Berlex Laboratories, Inc.

[71] http://www.paragardiud.com does not mention the possibility of post-fertilization effect under the selection "How does the ParaGard IUD work?" http://www.mirena-us.com lists thinning of the uterine wall as one of the three mechanisms by which the hormone-releasing IUD prevents pregnancy. (The other two are "Thickening of the cervical mucous to prevent passage of sperm" and "Inhibition of sperm movement" within the uterus). (The websites were examined on November 25, 2003)

[72] The material handed out to patient was copied from "Facts about the IUD" *The Contraception Report*, January 1994. (Provided to the author, April 15, 2002).

to detect fertilization until several days after it takes place. More importantly, fertilization often naturally results in non-implantation: women pass fertilized eggs, or miscarry or "abort," regularly without their knowledge. Given that IUDs make fertilization difficult, it seems reasonable to believe that the rate at which IUD users experience premature embryonic loss is not higher than the rate at which fertilized eggs degenerate without being noticed in non-contraceptive users. As Sivin (1989) stresses: "No studies show that IUDs destroy developing embryos at rates higher than those found in women who are not using contraceptives" (358). Physicians who demand full disclosure seem to conveniently forget that the IUD does no more than the natural body's process, which could also be a useful information for their patients. Pressing to acquaint women with the possible anti-implantation effect of the IUD without acknowledging that the rate at which this happens is lower than when not using contraceptives can be interpreted as a zealous undertaking to discourage the use of the method. While anti-IUD articles and letters to the editors present themselves as being motivated by good intentions to promote ethical medical practices that respect "women's choice," the nature of their position is actually anti-choice.

Science and Political Order

Whether or not the IUD works exclusively by preventing fertilization is not as critical a scientific dispute as it is a political controversy. The tension between the liberal political agenda committed to reproductive choice and contraceptive availability and the conservative political agenda aimed at banning abortion and discouraging contraceptive practices has shaped the scientific research on IUD mode of action. IUD supporters have

negotiated the acceptability of the method by carefully dodging attacks that the device is an abortifacient. During the 1960s and 70s, the new medical definition of "conception" as the point at which the fertilized egg implants in the uterus was sufficient to justify IUD development: since "abortion" could not take place until the egg had implanted, prohibiting implantation (as the IUD was believed to do) was considered an acceptable means of contraception. By the mid-1980s, the conservative political constituency rose to power, threatening not only to reverse the domestic advancements in reproductive rights achieved during the previous decades, but also to impinge upon women's access to birth control services overseas. As pressure mounted from antiabortion leaders that named the IUD's anti-implantation effect an abortion of the developing embryo, IUD supporters were compelled to develop scientific claims supporting alternative modes of action. During the 1980s, they concentrated their efforts on showing that IUDs do not act by destroying embryos that have made their way into the uterus, but instead by interrupting the reproductive process before sperms reach the point of fertilization in the fallopian tube or soon after the egg is fertilized.

Despite numerous studies, the precise mechanism of IUD action remains uncertain. It is fair to say, however, that scientists who support the IUD as a contraceptive method have made a strong case that the IUD interferes with very early phases of the reproductive process. The mainstream theory of IUD mode of action adopts this general view, namely that the device creates a condition unfavorable to fertilization and/or early egg development. They do not claim that the method completely prohibits fertilization; rather, they argue that that the effects of the device make it extremely unlikely for fertilization to take place at a normal rate. Supporters do

insist, however, that the IUD should not be classified as an abortifacient since no clear signs of fertilization or embryonic development have been found in IUD users. Their claims appear to be reasonable and supported by scientific studies. Yet, this position is repeatedly challenged by anti-choice physicians who take advantage of inconclusive scientific results and argue that since there is no conclusive evidence that IUDs work exclusively by inhibiting fertilization, the device should be advertised as a post-fertilization contraceptive method. Their objection to portraying the main IUD mode of action as disallowing fertilization is not based on a new study or "counter-evidence" that shows fertilization does take place in IUD users. Rather, anti-choice physicians reinterpret past studies to generate the conclusion that the anti-fertilization theory is unfounded and insinuate that the method is an abortifacient.

IUD antagonists and protagonists both gesture to their alliances with women. IUD antagonists foreground protecting "women's choice" to justify presenting the IUD as an anti-implantation method. It is unlikely however, that an IUD user will lose fertilized eggs more frequently than a non-user, whose incomplete pregnancies regularly end unnoticed. Considering that the chances of fertilization are much lower with an IUD *in situ*, overplaying the anti-implantation effect of the IUD as they do raises the suspicion that the IUD antagonists' true goal is to constrict contraceptive choices available to women. To be fair, IUD protagonists' appeal to women's wellbeing deserves scrutiny, particularly since when the Population Council orchestrated the revival of the IUD during the 1960s, the emphasis was placed on taking control of the fertility of women in developing countries rather than respecting their reproductive choices.[73] Over the years,

[73] This aspect is discussed in detail in previous chapters

however, the organization has adopted a position that views itself to be serving women's needs for birth control by improving the availability of safe and effective contraceptive methods. For IUD supporters, defending their products that come under attack in the antiabortion movement is consistent with preserving reproductive choice for women that is jeopardized by the conservative political agenda.

The diverging conclusions drawn by scientists on the primary mode of IUD action are not simply a result of different interpretations of data or a case of scientific uncertainty. Rather, they reflect the conflict between the worldviews under which these scientists operate. What appears to be a scientific disagreement is in fact a manifestation of the struggle between anti-choice and pro-choice scientists over the different *political orders* they seek to stabilize. Anti-IUD scientists endorse a political order, the central mission of which is to constrain abortion and sexual activities outside the patriarchal relationship. In this order, the IUD is drawn into the abortion dispute. The device is implied to be, if not explicitly redefined as, a form of abortion, which puts the method in a vulnerable position that may be affected by legislative restrictions imposed on abortion. On the contrary, IUD supporters uphold a political order symbolized by reproductive choice. In this order, the IUD is positioned as one of the acceptable contraceptive methods made available to women and is disassociated from abortion. The anti-choice scientists' challenge on the anti-fertilization theory of IUD mode of action is an attack on the political order that the theory stands for rather than a question of scientific validity. The dispute over how to represent the IUD mode of action is not a debate in and of itself: it is a tip of the iceberg of the on going battle over women's rights to reproductive freedom.

Chapter Five: Negotiating IUD-ed Bodies in Scientific Discourses

The Body/Technology Relationship

The previous chapter on IUD mechanisms of action and antiabortion politics showed that scientific representations of IUD-ed bodies are negotiated by scientists, who see their intervention using science as playing their role in the struggle over reproductive politics. This chapter continues to investigate several other female bodies that scientific discourses of the IUD have negotiated over the years. I read scientific representations of body/technology relationships closely against social and political contexts (as I have done in the previous chapter) to demonstrate that representations of IUD-ed bodies are products of socio-political and medico-scientific imaginations. Assumptions about the users' gender, race, class, and nationality as well as politics and social interests surrounding fertility control shape the characteristics of the IUD-ed bodies. Scientists' concerns over the contraceptive method's efficacy, safety, and side-effects also affect how users and their bodies are portrayed.

This chapter consists of three sections. In each section I describe the production and transformation of body/technology relationships that were imagined for certain types of IUDs, which embodied different predominant social and medical concerns depending on the historical moment in which they came under the spotlight. In the first section I investigate how during the 1960s scientists, whose interests in the IUD lie in population control, imagined the relationship between the device and the uterus. The first story also illustrates how the Lippes Loop became the first dominant IUD model. In the second section I analyze how scientists established the safety of the Copper IUDs by locating the

blame for IUD related injuries on the Dalkon Shield and redefining a safe body/technology relationship through a series of scientific studies. The second story also shows how Copper IUDs survived the Dalkon Shield crisis and became the most prevalent model. In the third section, I trace the development of hormone-releasing IUDs to demonstrate that representations of the bleeding IUD-ed bodies have transformed as expectations about the race, class, and nationality of IUD users changed over time. The third story is simultaneously a genealogy of Mirena, the latest IUD model on the market today. Combined, this chapter shows that overlapping as well as distinct social and medical concerns were behind the development of different IUD models. It also demonstrates that the race, class, and nationality of imagined IUD users have always been an important factor that shaped the representations of IUD-ed bodies.

The Biopolitics of the "IUD-Holding Uterus"

During the first decade of IUD development, scientists' desire to control the uteri of women in developing countries, their frustrations over failed attempts, and the compromises they reached informed the imagined body/technology relationships that play out inside IUD users. The attempt to come up with an ideal configuration of the device that perfectly fit the bodies of IUD wearers and manages their fertility eventually was driven by the impetus to invent a perfect tool for population control. This attempt ultimately failed when changes in the designs of the device did not lead to eliminating problems such as spontaneous expulsions and removals due to pain and bleeding. Researchers had to settle on a compromise, namely the realization that only uteri that are able to accommodate the IUD will retain the device. Simultaneously with the efforts to

improve the design of the device, researchers conducted a large-scale clinical trial in order to convince the medical community that the IUD was a scientifically valid method. The large number of users who discontinued the device again posed a problem for the statistical project. Statistical adjustments were made so that pregnancy rate was calculated based on users who stayed on the device. The users that remain in the picture in the early design improvement efforts and the statistical program are those whose bodies accommodated the device. When Lippes Loop became the predominant population-control-IUD, the accommodating IUD-holding uterus had become the predominant body/technology relationship of IUD-ed bodies.

Population war and the mission to control fertile bodies

The threat of overpopulation has been articulated using war metaphors and/or compared to threat of nuclear war. The Cold War anxieties about nuclear extinction was easily combined with the rhetoric that the overpopulation would fuel poverty, unrest, and the likelihood of war as well as self-annihilation through the depletion of natural resources. A few years before the Population Council rediscovered the IUD, contraceptive pills were introduced to the world with hopes to fight back population growth. The war metaphor is also seen in the following statement by Senator Bob Dole speaking at a congressional hearing:

> It is apparent at the present time the oral contraceptives are important *weapons* in the struggle to achieve some control over our ability to multiply ourselves into chaos (emphasis added, Quoted in Tone 1999: 379).

John D. Rockefeller III, founder of the Population Council, announced at the second international conference of the IUD in 1964 that while there is justifiable hope to prevent

nuclear weapon use, there is no hope that tremendous growth in world population can be escaped, and thus "the problem of unchecked population growth is as urgently important as any facing mankind today" (Segal, et al. 1965:1). "Population War" was the political order that many IUD supporters embraced during the first decade of modern IUD development.

As I described in chapter two, the IUD was revived by the Population Council bearing significant hope that the contraceptive method would prove to be a panacea for the "population problem." Rockefeller III opened the 1964 IUD conference declaring that "central task of our time [is to] stabilize this [population] growth soon enough to avoid its smothering consequences" (Segal, et al. 1965: 1). He then proceeded to emphasize the hopes he placed on the IUD researchers:

> In this effort bio-medical scientists like yourselves have an important role to play. Your knowledge and wisdom can help guide and direct governmental policies and programs, your research findings will contribute significantly towards providing modern methodology for family limitation. Your work can thus be a major factor in the success of national family planning programs, upon which rest the hopes of many countries for economic survival and for the well-being of their people… This meeting can be of historic importance in applying the knowledge from modern science to a major world problem to the great benefit of human kind. (ibid)

This speech shows that those involved in the development of the IUD were carrying a considerable responsibility on their shoulders. They had the mission to win the population war, the strategic battlefield of which was now at the uteri of predominantly Third World women, whose fertility the IUD must control to restrain population growth.

Scientists themselves defined their role against this political backdrop. Two gynecologists published an article in 1968 in *Obstetrics and Gynecology,* urging that gynecologists, who have little influence on the decisions of governments relating to economic development or political alignments, should exert influence by supporting

programs of research and development in the area of human reproduction. (Tone 1999: 379). Lazar Margulies, the inventor of Margulies Spiral IUD, explained his motive for experimenting with IUDs as follows:

> My interest in contraceptive was aroused by Dr. John Rock of Boston who in November 1958… spoke for more than an hour about the dire consequences of overpopulation and the urgent necessity for large-scale conception control. The lecture gave me the incentive to search for a simple, inexpensive, and reliable, permanent, contraceptive that could be applied and removed easily. (Marguiles 1962: 61)

Margulies started experimenting with intrauterine devices in 1959, received one of the first two research grants awarded by the Population Council in 1961, and introduced the Margulies Spiral, also known as the Perma-Spiral and Gynekoil, which became one of the first prototype IUDs made of flexible plastic.[74]

Hugh Davis, the inventor of Dalkon Shield, is another physician who was especially vocal about the role of IUD in the war against overpopulation. In his book promoting IUDs, Davis urged the importance of industrialized countries' intervention in global fertility control:

> We are losing the population war globally…The developed nations must actively support at least a 20 fold increase in family planning services in developing nations during the next decade, if global famine is to be averted. (Davis 1971: 34)

The perceived urgent need to fight the population war with a contraceptive technology and the desire to control the fertile bodies of undesirable populations shaped the scientific discourse around the IUD during the first decade of IUD development.

[74] Wood (1971) provides detailed history of the early development of IUDs.

The resisting IUD-ed bodies and the quest to "fit" the IUD

Though ideal in theory, the IUD caused a number of problems in practice including accidental pregnancies with the IUD in situ, spontaneous expulsions (which, when unnoticed, led to unwanted pregnancies), and removal due to pain, bleeding, or more serious medical reasons. In terms of failure rate measured by accidental pregnancy, studies generally showed that the IUD compared favorably to other available methods: between 1 to 6 women out of one hundred got pregnant in one year. However, when expulsions and removals were added in, too many women were dropping the method, although the rate of closure varied from study to study.[75] As I described in the previous chapter, scientists did not know exactly how the IUD worked. The generally accepted theory was that the IUD prevents the implantation of the fertilized egg. How precisely the IUD worked as a contraception and caused bleeding and cramps, however, were not established. Perhaps due to bewilderment or due to frustration that their innovations were not working as they had envisioned, IUD developers often explained that the uterus was resisting the foreign body that they had inserted.

Antagonistic relationships unfold between the IUD and the uterus in discussions by the scientists. When spontaneous expulsion took place, scientists explained that the uterus "rejected" the device or that "the uterus was ejectively responding" to the presence of an intrauterine ring. Sometimes, expulsions were described as the ring "escaping" the uterus, often undetected by the patient and followed by unwanted pregnancies. Scientists

[75] Reports range widely from 12% to 42% users discontinuing in the first year (Population Reports, 1975). It is difficult to define what is an unacceptable rate of discontinuation. Is controlling 50% of the population a step forward or not enough? It appears that early developers were anticipating success rate to be very high, and the fact that discontinuation was prevalent troubled them greatly.

often attributed the expulsion problem as the doing of the "angry uterus" that contracted itself and expelled the device. Uteri that repeatedly caused problems were named "habitual ejecters," whose X-ray was described as having an "incompetent internal os" that was "incapable "of keeping the IUD in place. One physician described users' complaints of side effects as a sign of "uterine protest" that was occurring "in the form of cramps and bleeding." The uterus was "sending a message" rather than the woman herself; the uteri of IUD users were the center of physicians' focus. Naturally the uterus contracted and moved around, which was understood as the uterus "reacting violently" and as being "restless," which caused the devices became twisted and distorted. One researcher, who had retrieved disfigured IUDs explained: "In each case, *the uterus had been at it* and turned the ring into a figure eight which twisted on itself" (emphasis added, Jackson, 1962: 121). The uterus was not a hollow container holding the IUD, but responded in ways developers did not quite have control over as they had imagined when population control advocates talked about using the device to limit the fertility of "problem populations." Scientists, who projected their mission to fight the population war by controlling fertile uteri, interpreted the difficulties they were having were the results of the uteri resisting their intervention. It appears that the women disappear as their uteri stand in for them in the scientists' imagination of the body/technology relationship.

In the absence of exact knowledge of how IUDs work and faced with "uterine resistances," many developers hypothesize that it was important to find the ideal composition of the device that 'fit' the uterus well. The invention of devices made of flexible plastic in addition to the traditional ring shaped devices made of silver wire,

stainless steel, or silkworm gut, enabled physicians to experiment with various sizes, shapes, and surface areas to find an IUD model that occupied the uterine cavity in some ideal way that reduced pregnancy rate, expulsion, bleeding, and pain. By the 1970s, there were at least 40 to 50 different experimental models.

Participants of the 1962 conference generally accepted the idea that devices that are too large or too small for the uterus caused problems:

> A ring which is too large to be comfortably accommodated by the uterus may be pushed out, and one that is too small tends to find itself in the lower uterine segment, from where it may easily slip into the cervical canal if the internal os is at all incompetent. (Hall 1962: 39)

> Expulsion appears to occur more often if the ring is too large. On the other hand, too small a ring is said to permit conception with ring *in situ.* (Tietze 1962: 16)

Researchers attempted to determine the appropriate size of IUDs. For instance, after two years of experimentation with different models, Lazar Margulies, settled on two alternative sizes for his Spiral IUD, which he selected from based on the uterine measurement that he took prior to insertion. Others tried to develop shapes that fill up the uterine cavity, believing that this would improve effectiveness both in terms of pregnancy prevention and preventing expulsion. Jack Lippes, the inventor of the Lippes Loop, was one of them. He devised the double "S" shaped IUD, which he believed "corresponds to the shape of the uterine cavity" and would not be easily expelled by uterine contractions. Charles Birnberg, the inventor of the Birnberg Bow, was another inventor who tried to "fill up" the uterus. He and a colleague X-rayed 70 patients with

various sizes of the Birnberg Bow and calculated "fundal occupancy" ratio achieved by the IUD to see how well the uterus was "protected" by the device.[76]

As opposed to simply filling up the uterus, Hugh Davis hypothesized that low pregnancy rate is achieved by increasing the total surface area of the plastic that is in contact with the uterine wall. His idea eventually led to the invention of the infamous Dalkon Shield IUD. Another concept that guided his invention was expulsion prevention, which he claimed to accomplish by adding protruding fins that would grab onto the uterine wall. The Dalkon Shield, the Mazilin Spring, and the M-device were all conceived to prevent the uterine contraction from pushing out the devices. All of these models proved to be hazardous, causing not only pain, but the embedding of the device in the uterine wall and difficult removal. All these devices were withdrawn from the market due to their faulty designs.

Scientists took uterine measurements and plotted them on graphs and classified them by size and shape in order to determine the ideal design of the contraceptive device. Hugh Davis, for instance, took 25 silicone rubber casts of "fresh uterine specimens, removed by vaginal hysterectomy" (Davis, 1964: 135) and plotted the samples on a graph according to their measurements. Scientists also took X-rays to visually examine the relationship between the uterus and the IUD. Earliest X-rays simply showed the IUD suspended in between the hipbones. Contrast medium introduced into the uterus made it possible to view both the uterus and IUD together; in other words, to visualize the "IUD-holding uterus."

[76] For instance, one shows 100% occupancy, another shows 50% occupancy. Some 30 percent of the patients showed what he called "prong signs" – "defects" in the lower uterine segment caused by the Bow accompanied by bleeding and cramping.

Ibrahim Kamal cast the ultimate gaze into the IUD-holding uterus. He published his study results of 14 years and over one hundred X-ray photographs, most of which are of uteri containing a Lippes Loop, in 1979 in *Atlas of Hysterographic Studies of the "IUD-Holding Uterus."* Through numerous visual representations, Kamal argued that bleeding and pain are directly linked to the *disharmonious fit relationship* between the uterine cavity and the device. When the uterus was too small compared to the device, it became "irritable," and when the uterus was too large the device became "disoriented and displaced" causing bleeding and resulting in "incomplete cavity occupation." He concluded that bleeding and pain were absent in an ideal IUD-uterus relationship, which was achieved when the device fit snugly against the various borders of the cavity, forming a "*perfectly harmonious fit relationship*." Commenting on Kamal's *Atlas*, another researcher says:

> Dr. Kamal shows very convincingly that the size and shape of the uterus must be in a 'harmonious fit relationship' with the IUD model being fitted. He does this in such a way that the concept of IUD 'fitting' (as opposed to 'insertion') takes on a new meaning. (Robert Snowden, Forward in Kamal 1979: 5)

While the scientists were rarely concerned with individual reproductive needs, they did take notice of the "anatomical individuality of women fitted with and IUD" (Kamal 1979: 5). "To be fitted with an IUD" is now a fairly common expression in family planning literature, and as if it were a type of clothing, users are sometimes even called "IUD wearers."[77]

While scientists never rejected the hypothesis that the IUD must fit the uterus, they did not believe that individually fitting an IUD to each patient's uterus, with its varying shape, size, and anomaly, was practical. Hugh Davis cleverly forewent this

[77] The phrase "be fitted with an IUD" may also be coming from being "fitted" with diaphragms and cervical caps.

problem of having to deal with anatomical individuality by creating the "average uterus" while at the same time promoting his Dalkon Shield IUD as the first and only anatomically correct model. Davis plotted measurements taken from 50 uteri and then positioned his Dalkon Shield and two other models on the graph, showing that the Shield corresponded with a greater number of uterine samples while the Lippes Loop and the Safe-T Coil lay outside the average range. Furthermore, he utilized a visual trick to demonstrate that the Dalkon Shield is the ideal configuration. He photographed commercially available IUDs against a triangle representing the "average uterine cavity size." The photograph of the Dalkon Shield shows that the device fits perfectly in the triangle. Other models are shown as being either too "bulky" or too small (Davis 1971). Instead of fitting the IUD to the uterus, Hugh Davis reversed the relationship: he created the standard uterus that fits his own device.

Attempts to find the perfect body/technology relationship by inventing the perfect IUD that fits the uterus ended in disappointment. Despite the development of an amazing array of new IUDs in different sizes, shapes, surface areas, and other physical dimensions, user discontinuation of the method due to expulsions, bleeding, and pain persisted. After about a decade of inventing, devising, measuring, gazing, and experimenting, developers came to the realization that the IUD was not as promising as it had appeared at the beginning of the 1960's. Statistical results of cooperative clinical studies showed that design changes in the devices made only minor improvements, whereas the differences among different clinical centers were much more significant. "In spite of extensive clinical study of many IUD configurations and a "reasonably good" evaluation methodology," declared a scientist, "the effort to improve intrauterine

contraception has proved "expensive and frustrating"" (E. Kessel, 1974, quoted in Population Reports 1975: 39).

Efforts to improve IUD retention rate shifted from seeking an ideal IUD model to improving insertion techniques to prevent accidental uterine perforation, training health service providers to give appropriate counseling, and exploring bioactive substances that can be added to the device to reinforce the contraceptive effect or reduce bleeding and pain. Population control advocates also realized that the "cafeteria approach," which allows users to choose from multiple methods, may be beneficial in increasing contraceptive acceptance. No longer believing that an ideal IUD that fits all women can be devised, studies moved to better understanding the cultural factors that may influence IUD performance and to profiling the ideal "IUD acceptors."

By the 1970s, it appeared that at best one can hope that the IUD and the uterus will reach an "equilibrium" after the first few months during which side effects are most prominent. In other words, physicians could do very little but to suggest the patients to persist through the first few months until the uterus hopefully begin "to accommodate the device and to react less violently to its presence" (Wood 1971: 51). The technologically manipulable IUD-ed bodies initially imagined by population control advocates never materialized. They had to retreat from aiming for total control over the uterus and come to terms that the antagonistic relationship that they observed between the uterus and the IUD could only be resolved by achieving a "harmonious relationship" or reaching an "equilibrium." The "accommodating uterus" represented the body/technology relationship that researchers settled on after a decade of searching for the ideal technology.

The statistical program and the body/technology relationship

In parallel to the design efforts to find the ideal IUD configuration, researchers were conducting the Cooperative Statistical Program (CSP), or the large-scale multi-national clinical trial of IUDs, the goal of which was to legitimize the IUD as scientifically tested method of fertility control. The CSP was conceived during the First International Conference on the Intrauterine Device, during which participants agreed that in order to successfully apply the IUD to population control, it had first to earn the status of a modern scientific contraceptive method. Christopher Tietze, who later coordinated the CSP, believed that controlled studies should be conducted before attempting to distribute the device to unselectively to large populations. He contended that the greatest obstacle to widespread adoption of IUDs was the opposition of the medical community. Although Tietze does not elaborate why medical professionals are opposed to IUDs, historical analyses of intrauterine pessaries and rings suggest that their prejudice against intrauterine devices stemmed from the association of pessaries with underground sexual practices and impressions that intrauterine rings exposed users to risk of infection (Dugdale 2000; Wood 1971). Tietze persuaded the 1962 conference participants that future research strategy should focus on impressing upon the medical profession the validity of IUDs:

> [O]ur first objective must be to convince our colleagues outside of this room that intra-uterine contraception is a respectable medical procedure and not the devil's work…Our planning for the next few years should be oriented toward careful clinical testing and not use on a large scale, even if this is our ultimate goal. Only when we have won the support of a part of the medical profession should we turn to the question of how this method can be used in mass distribution. (Tietze and Lewit 1962: 123)

Tietze found high rate of discontinuation in CSP similar to the ways the researchers experimenting with different designs did. Tietze had to make adjustments in his statistical method in order to obtain a meaningful result that fulfilled the goal of legitimizing the IUD as a scientifically tested method.

Marcia Meldrum (1996) details the process by which Tietze found a way around the problem of high discontinuation rates and invented a statistical method that accounted for pregnancy rates for women who continue the method. After experiencing a high number of dropouts among his subjects, Tietze and his colleague Robert Potter devised the Life Table Method. The Life Table Method assumed that high percentages of couples – the "less motivated," the "less skillful," the "pregnancy prone," or those who simply disliked the method – would stop using *any* given method within the first few months, "while the more determined contraceptors remain." Candidates for a contraceptive failure either will not choose the method given the choice, or drop out early – as a result, as a given trial continued, pregnancy rates for the remaining users decline. Potter developed statistical formulas that could "project the experience of a hypothetical couple using the method consistently over the entire period" (Meldrum 1996: 291).

In the CSP, only 55% of the original women subjects were still using the device at the end of the 5-year study in 1968. The results were adjusted for the large number of early removals, and pregnancy rates were calculated as 6.5 per 100 years at the end of the 6th year (which was low and therefore acceptable by the standards at the time). Meldrum points out that the CSP produced a particular kind of representation of users.

> Tietze and Potter's model introduced the "determined contraceptors": the couples who, through motivation, experience, and consistent use, were able to achieve a statistically verifiable pregnancy rate with a given contraceptive method. Yet these persistent individuals were as much an invention as the 100 women-years of unprotected intercourse." (Meldrum 1996: 291)

The Life Table Method captured the experiences of a group of users whose needs had been met by a particular method, while it "failed to interpret the experience of the dropout users as part of the evaluation of the method" (ibid).

In both the design efforts and the statistical program, IUD researchers had to come to terms with the fact that discontinuation exists at high rate. Designers concluded that some uteri cannot "tolerate" IUDs and resolved to wait for the uteri to "accommodate" the IUD. Statistical program resorted to calculating pregnancy rates based on users who persisted, or those who "accepted" the device. The accommodating uteri in a way belonged inside the IUD acceptors. Despite running into discontinuation problems, the CSP was successful in establishing the scientific legitimacy of the IUD. The large-scale study also made the Lippes Loop as the "most-tested" IUD. The Lippes Loop, which had had an advantageous start owing to the sponsorship of its inventor Jack Lippes by the Population Council, solidified its status as the first most prevalent model distributed to developing countries. The statistical study also allowed scientific representations of IUD-ed bodies to move away from focusing on uteri that reject the IUD and settle on quantifiable, anonymous, and abstracted bodies that have "accepted" or "accommodated" the device. The body/technology relationship embodied by the population-control-IUDs, represented by the Lippes Loop, is one that is anonymous, abstracted, and accommodating.

Re-establishing the Safe Body/Technology Relationship

In April 2002, I phoned the doctor at a neighboring Planned Parenthood and told her that I wanted to have an IUD inserted. She immediately asked me whether I was married, to which I responded "no." I was momentarily taken aback by her direct inquiry, but understood what was coming and gathered my thoughts while she followed up with more questions including: "Are you in a monogamous relationship?" "How long have you been with this man?" "Are you and your partner committed to a long-term relationship?" Finally, I volunteered some information in an attempt to convince the doctor that I was a good candidate for an IUD: I am in my late-thirties, already have a child, and do not plan to have another one any time soon. I added that even if I were to try to conceive in the future and experienced difficulties, I would not know if age or the IUD were to be blamed. With this assurance, she agreed to provide me with an IUD. This episode speaks to the ways in which safety and risk of IUDs are managed in the United States today.

As I discussed in chapter three, the litigation over the Dalkon Shield injuries and fatalities greatly impacted the IUD market in the United States. This section illustrates how scientific discourses contributed to the unmaking of the injured and fatal bodies of the Dalkon Shield users and to the remaking of "safe" or "risk-free" IUD-ed bodies of Copper-T users. The process consisted of locating the blame for IUD-related injuries on the Dalkon Shield and on high-risk bodies. By isolating the Dalkon Shield as exceptionally dangerous and averting bodies that may be more susceptible to infections, IUD developers negotiated the "safety" of the Copper-T device and defined certain types of bodies as "safe." In other words, this section illustrates the co-production of safe technology and safe bodies.

The fatal and injured bodies of the Dalkon Shield users

It was not until the mid-1970s, when reports of deaths among users alarmed the medical community and policy makers of risks associated with IUD use, that scientists paid concerted attention on IUD safety. During the 1960s, researchers were interested for the most part in the method's efficacy measured by pregnancy rate and rates of retention and removal. Bleeding and pain received considerable attention because they were common reasons for IUD removal. Researchers occasionally expressed that part of their goal in testing IUDs was to ensure their safety and discussed adverse effects of the method other than simple bleeding and pain before this time. Risks of infection, infertility, and deaths, however, were rarely at the center of the researchers' attention. The 48 participants of the first international conference on the intrauterine device in 1962 did not feel that the method entailed a great deal of danger. They were well aware that the medical community at large was opposed to IUDs because of the perceived risk of infections and acknowledged that intrauterine rings and pessaries had been associated with serious infections during times when antibiotics were not yet available. Participants of the conference, however, maintained that they had rarely encountered serious complications, and when they did, they had successfully treated them with antibiotics. Chairman Alan Guttmacher concluded that the consensus among the 1962 conference participants appeared to be that: "infection is very uncommon with intrauterine contraceptive devices. It is generally thought that, when it occurs, it is a matter of coincidence more than a result of wearing the device" (Tietze and Lewit 1962 : 120). While some expressed worries for being sued by patients who mistakenly attribute their infections to IUD use, physicians

who voiced such concern still believed that infections in IUD users were coincidental or even psychological (ibid: 133).

The Cooperative Statistical Program (CSP) that followed the conference asked study participants to record "the number of patients who experienced, on one or more occasion, side effects requiring temporary or permanent removal of the device or systemic treatment with antibiotics" (Tietze and Lewit 1962: 149). The project, however, did not collect detailed information on the type and degree of adverse effects since the goal of the study was to assess pregnancy rates and quantify the level of retention rather than to investigate the safety of the device. Infection as a topic was discussed occasionally amongst IUD developers during the 1960s, but researchers generally remained unalarmed by the possibility of IUD related complications such as infection and uterine perforation, rendering the former as rare and treatable and the latter mostly as a result of erroneous insertion technique. Package inserts of IUDs marketed during the 1960s suggest that pharmaceutical companies believed likewise. They even recommended that the device be left in the uterus in the event of accidental pregnancy believing that early removal of the device induced miscarriage.

Reports of three deaths of IUD users due to overwhelming infection in May 1967 finally prompted a survey on IUD use involving more than 8,000 gynecologists. The survey revealed ten deaths and 561 cases of critical infections or perforations associated with IUDs. Roger Scott, who headed the subcommittee that conducted the survey for the U.S. Advisory Committee on Ob/Gyn, alerted physicians in his report titled "Inflammatory Reactions and Warning" that complications from the use of IUDs may "provide a fertile field for malpractice suits" (FDA 1968: 44). The Committee at large,

however, judged that mortality, pelvic inflammatory disease, and perforation cases to be negligible and failed to convey the sense of urgency that Scott put forward. The Committee's action was limited to recommending sterile packaging and proper insertion techniques to minimize the risk of infection and perforation, while concluding that "more serious adverse reactions associated with the IUD are rare, stemming essentially from infection and from uterine perforation during insertion" (FDA 1968: 8). Scott also published a short note of warning in *Obstetrics and Gynecology*, but reactions during the 1960s to reports of deaths and injuries among IUD users were generally slow. Although the Population Council may have funded research projects investigating endometrial responses to IUDs, it was not until the Dalkon Shield fallout that concerted effort was made to determine the risks of IUD use.

Barely one year after A.H. Robins started marketing the Dalkon Shield, inquiries and complaints started to flow into the company's medical consultant (Mintz 1985). Patients were getting pregnant at a rate much higher than the 1.1% that the device was advertised for. But more importantly, each physician had seen one or more serious midtrimester spontaneous septic abortion. Ellen Preston, representative of A.H. Robins, responded to each physician that reported septic abortions maintaining that such complications were extremely rare, and the company continued to aggressively promote the Dalkon Shield throughout 1972. It was not until December 1973 that the company finally reported four deaths related to the Dalkon Shield to the FDA. It took the company another six months before it mailed "Dear Doctors" letters advising them to remove the Shield from pregnant women.

When the company ignored their complaints, a few of the physicians who experienced serious complications among his patients went public with their conviction that the device posed danger to its users. Russel Thomsen was the first to testify in front of a Congressional hearing on May 30, 1973.[78] During his testimony, which he urged for FDA regulation of IUDs, he gave harsh criticisms of the Majzlin Spring and the Dalkon Shield IUDs. The next day, Morton Mintz wrote an article for the Washington Times titled "Doctor Attacks IUD Safety."[79] Donald Christian started collecting cases of IUD related deaths and critical illness after he discovered by chance that he was not the only physician whose patient had died in a septic abortion with the Dalkon Shield in place. Christian became extremely concerned with the "possible problems with this particular device [the Dalkon Shield]" and published an article in the *American Journal of Obstetrics and Gynecology* in June 1974 reporting five deaths of pregnant IUD users and seven additional users who became severely ill with septic abortions. All of the deaths and septic abortions but one from each category were Dalkon Shield users.

Christian described the death of his patient as follows:

> The patient, a 31-year-old woman,…had a Dalkon Shield inserted on October 8. An intrauterine pregnancy was diagnosed,… The intrauterine device was left in place. On March 27, the patient reported a flulike syndrome which she stated that two of her children also had. She additionally mentioned a sense of lower abdominal fullness. On March 28, she noted one episode of transient shaking chills. At 0400 hours on March 29, she developed unremitting shaking chills and a scant amount of vaginal bleeding and fever. She was admitted with temperature of 103 F., jaundice, and an acutely ill appearance.Shortly after admission, she was delivered of a fetus of approximately 19 weeks' gestational age, and a curettage followed…. Despite all measures, the patient developed anuria… At 2012 hours on March 30, the patient died 72 hours after the first flulike. symptoms (Christian, 1974: 442)

[78] Russel J. Thomsen, M.D. "A basis for Food and Drug Administration and Federal Trade Commission regulation of IUD research, production, and promotion" Testimony presented at the House Government Operations Committee Hearings, May 30, 1973. Population Council Archives, Accession II, AD 11.
[79] Morton Mintz, "Doctor Attacks IUD Safety" Washington Post, Consumer section, May 31, 1973.

Christian pointed out that the cases that he describes are dissimilar in pattern to the cases that Roger Scott reported in 1968. Moreover, in three of the deaths of pregnant IUD users, the patients perished extremely rapidly, within 31 to 72 hours of the first symptoms, providing no time to medically intervene. (Normally, localized signs appear before infection becomes generalized, but not in these cases; they seemed to occur simultaneously). While carefully noting that "it should not be concluded that a shield-type device is the only device that may be associates with such problems" (ibid), Christian suggested that these cases might be unique to the Dalkon Shield. "One wonders," wrote Christian, "if there may be something about the design of the shield-type device that allows vascular dissemination of infection that might otherwise be locally contained" (Christian 1974: 443). While later medical studies do not provide an answer to his specific question about why Shield users were prone to rapidly spreading general infections, they did repeatedly highlight that the Shield may be uniquely dangerous, as Christian had suspected. As Thomsen did during the congressional hearing, Christian, too, raised the critical question about FDA regulation. He claimed that these incidents of deaths invite "the much larger question of whether there should not be more rigid evaluation and control of medical devices. Certainly, if there were five botulism deaths from one type of mushroom soup, the Food and Drug Administration would do more than put out a questionnaire" (Christian 1974: 444).

The FDA, however, did not act as promptly as one might have hoped. In retrospect, if the agency had swiftly ordered recall of the Shield, additional damages to women's health that may have been prevented. A second FDA hearing was held in August1974 to consider the safety issues related to the Dalkon Shield and other IUDs.

The result was ambiguous, and the meeting concluded "whether the shield is any worse than other devices has yet to be firmly established" (Culliton and Knopman 1974: 839). While Planned Parenthood quickly had recalled all Dalkon Shields following A.H. Robin's "Dear Doctor" letter, the FDA merely recommended removing the Shield from pregnant women and emphasized that shields being worn without complications do not need to be removed. The FDA's position was that "there is simply not enough evidence to convict or acquit the shield" and that "shields being worn without complications should not be removed" (Culliton and Knopman 1974: 841). This proved to have been a bad decision since many non-pregnant device users who died or were injured could have been saved if the all the devices were recalled immediately. It was not until October1984, after numerous lawsuits, that the company issued a recall campaign or Dalkon Shield removal program for women who still wore them.

Locating the blame: Isolating the Dalkon Shield

Are there any differences in safety between the Dalkon Shield and other IUDs? While the August 1974 FDA hearing did not yield a concrete answer to the question, this inquiry spurred various studies, reports, and debates over the subsequent 20 years. Studies on IUD related deaths (Cates 1976) and pelvic inflammatory diseases (Burkman 1981; Lee 1983; Kaufman 1983; Lee 1988) were reported from the U.S., and were supplemented by similar reports from the U.K. (Vessey, et al. 1981; Buchan et al. 1990). Risk of infertility related to IUD use was also investigated (Cramer, et al. 1985; Daling et al. 1985). Most of these studies reported that there was an increased risk of death, PID, and infertility associated with IUD use in general, but with significantly elevated risk for

Dalkon Shield users. This view was challenged in the early 1990's by a couple of groups of scientists who maintained that the Dalkon Shield was not any more unsafe than other IUDs (Kronmal, et al. 1991; Mumford and Kessel 1992). Scientists who believed that the Shield was uniquely hazardous responded quickly with articles disputing the claim that the Shield was no different from other devices (Burkman 1991; Sivin 1993).

Among the earliest data available on IUD mortality was from the Center for Disease Control's epidemiologic surveillance of abortion-related mortality. Researchers found that among the 50 women who died from spontaneous abortions between 1972 and 1974, seventeen had an IUD in place, of which thirteen were the Dalkon Shield. They estimated that the risk of death from spontaneous abortion for Dalkon Shield users was three times higher than users of other devices. Risk of death from spontaneous abortion for women who continued their pregnancy with an IUD in place was found to be 50 times greater than non users (Cates, et al. 1976).

Maternal deaths were what first drew attention to IUD related risks, but in terms of the number of users affected, pelvic inflammatory disease and resulting infertility had a more widespread and devastating impact. As I mentioned earlier, early investigators considered that PID and IUD use were unrelated, coincidental, or could be prevented by proper sterilization of the device and instruments. The first large-scale data collection of the relationship between IUD use and PID was conducted between 1974 and 1976 by the Women' Health Study supported by the National Institute of Child Health and Human Development (NICHHD). 1447 women who were hospitalized for an initial episode of PID were interviewed and compared with women without a PID. Data collected in this survey were analyzed by a few research groups, yielding new analyses over the years.

The first report of the Women's Health Study concluded that risk of PID increases with IUD use by 1.6 compared to non-contraceptive users and by 4.5 compared to pill users, but the authors refrained from comparing among different IUD types (Burkman, et al. 1981). Another group of scientists reanalyzed the data and suggested that the Dalkon Shield users were exposed to 8.3 times more risk of developing PIDs as compared to women who used no contraceptives and five times more risk compared to women using other types of IUDs. They also noted that increased risk of PID in non-Shield-type IUD users was confined to the first four months of use, implying that the infection was transmitted at the time of insertion, while the Dalkon Shield users were at continued risk of infection during long-term use. Many other studies on PID and/or tubal infertility associated with IUD use also suggested that the Dalkon Shield carried elevated risks compared to other IUDs (Vessey, et al. 1981; Kaufman, et al. 1983; Cramer, et al. 1985; Daling et al. 1985; Buchan et al. 1990).

It is now generally accepted that Dalkon Shield was an exceptionally dangerous device that was not well tested like the others on the market, not approved by FDA like the later models, and was pushed on women unethically by its company and the inventor. Morton Mintz's elaborate book meticulously lays out the social elements leading to the Dalkon Shield crisis and successfully shows that the Shield was a faulty device that injured numerous women owing to personal greed, collective irresponsibility, and cover-up that led to deceptive advertisement, aggressive promotion, and delay of cautionary action. Mintz's objective was not to endorse other IUDs but to expose corporate unethical behavior and slow legislative action and to question the integrity of ethics in medicine. While the story that Mintz has told is fairly well known, it is not widely

recognized that the Population Council took proactive measures to discount the Dalkon Shield with scientific claims in order to secure the status of other IUDs that they had helped develop, test, and promote. The Council had never supported the Dalkon Shield, believing that its deliberate design that prohibited the device from being expelled from the uterus was potentially hazardous.[80] When the safety of IUDs started being questioned in the 1970s, the Council had been testing and distributing the copper-bearing IUDs, which they believed would become the next generation IUD (Population Reports 1973). Population Council scientists proactively defended their IUDs while gathering data that supported the theory that Dalkon Shields are exceptionally dangerous.

Population Council scientists, Daniel Mishell, Sheldon Segal, and Christopher Tietze, promptly responded to Russel Thomsen's complaints regarding IUDs and presented their views before the 1973 Fountain Congressional Hearing. They argued in support of FDA regulation of IUDs and suggested strict guidelines. Simultaneously, they emphasized the integrity of the IUD itself as a method and the work done by the Population Council:

> While expressing our support of regulatory action with respect to IUDs, we would like to emphasize our confidence in those adequately tested devices now in use, and to assure the subcommittee that the evaluation of intrauterine contraception during the 1960s is a proud chapter in the science of contraceptive development.[81]

[80] During an interview with the author, Sheldon Segal of the Population Council recalled that the Committee of IUD at the Council thought that "if the uterus wants to expel the device than it should be able to" and that the Dalkon Shield was dangerous because it was designed to embed its legs into the uterine wall in the event that the uterus contracted .

[81] "Statement by Daniel R. Mishell, M.D., Sheldon J. Segal, Ph.D., and Christopher Tietze, M.D. for The Population Council before the Subcommittee on Intergovernmental Relations, House Committee on Government Operations," June 12, 1973. Population Council Archives, Accession II, AD11.

Mishell on a separate occasion published an article in *Family Planning Perspectives*, laying out study results that indicated that the Dalkon Shield was especially dangerous (Mishell 1975).[82]

Howard Tatum's study had the most significant impact on locating the blame on the Dalkon Shield. Soon after the IUD controversy started to surface, Tatum, a Population Council scientist and inventor of the T-shaped IUD, led a study of IUD tails, which suggested that the unique multi-filamented cervical thread of the Dalkon Shield may have served as a wick to send bacteria up from the vagina into the uterine cavity (Tatum 1975, 1976). The tail of the Dalkon Shield was made of multiple fibers encased in a sheath. Tatum dipped one end of the tail in dye and demonstrated that the capillary action of the multi-filamented tail allowed the dye to flow from one end to the other. All other IUDs used mono-filamented tails, which did not make such capillary action possible. Tatum's study showed that if the Dalkon Shield tail had any breakage in the sheath, which had actually been observed visibly on Shields formerly worn by women, then this would be enough to provide bacteria an entrance into the uterus. When a woman became pregnant and left the Shield in, the tail, which most likely harbored bacteria that moved in between its filaments from the vagina, usually retracted up into the endometrial cavity after 10 weeks. This explained why the most severe infections and septic abortions occurred in midtrimester pregnancy. Tatum presented his findings at the Congressional Hearing in August 1974 and a follow-up report in October, which finally prompted the FDA to decide on recommending a moratorium on the commercial distribution of the Shield. The wicking tail theory is generally accepted as an explanation

[82] A dissenting letter from Frederick Clarke, Vice President and Medical Director of A. H. Robins Company was later printed in the journal. Mishell responded strongly disagreeing with Clarke's view that the Dalkon Shield was not uniquely dangerous.

to the Dalkon Shield deaths and injuries among the medical community.[83] A.H. Robins and the Dalkon Trust have rejected the faulty tail theory, which was also not accepted as "evidence" in court. Judge Lord, who found A.H.Robins guilty, however, believed that the tail accounted for injuries.

During the early 1990s, a group of scientists attempted to refute the claim that the Dalkon Shield was uniquely dangerous by discounting previous studies as junk science (Kronmal, et al 1991; Mumford and Kessel 1992). Irvin Sivin of the Population Council immediately responded with a review of past studies, meticulously singling out the Dalkon Shield as the major source of IUD related injuries, infertilities, and deaths. He maintained that "the FDA also differentiated the Shield from contemporary IUDs on the basis of the then available epidemiological studies from the CDC and from bacteriological studies of the Shield's tail by Tatum, et al" (Sivin 1993: p.9). Sivin regretted the decline of IUD utilization in the United States, which he believed was a result of 1985 publications, whose titles associated IUD use with tubal infertility. He criticized the reports for failing to point out that the Dalkon Shield has inflated the rate of risks for all IUDs and the titles of reports for suggesting that all IUDs are linked equally to tubal infertility. He stressed that the Dalkon Shield had the highest risk of infertility while the copper-releasing IUDs had the lowest risks. The Population Council scientist apparently felt the need to put an end to the IUD safety debate and to differentiate and defend the Copper-T, while rendering the Shield as definitively unique to the problem.

[83] Canavan (1998), Population Reports (1995), for instance.

Blaming sexual practice

Isolating the Dalkon Shield as an especially dangerous device, however, was not sufficient to make claims about the safety of other IUDs since IUD use was still associated with some overall elevated risk compared to non-users. Pointed investigation of data of women with IUDs, however, started to allow investigators to make assumptions about factors that made the IUD safe for some women and unsafe for others. Prior to these investigations, certain medical conditions, such as pregnancy and a history of genital or pelvic infections had been indicated as contraindications against using IUDs. Through a series of research on IUDs and PIDs during the 1970s and 80s, sexual behavior and parity got built into the risk factor. A resulting profile of safe IUD users emerged: women who have already had a child and are in mutually monogamous relationships.

Burkman, et al (1981), who analyzed the data on women hospitalized with PID between 1976 and 1978 during the Women's Health Study looked for characteristics that contributed to a higher risk of contracting PID. They found that having more than one sexual partner ranked the highest relative risk, 2.6 times more than women with only one sexual partner. Having sexual intercourse more than five times a week and being younger than 25 ranked second, with 1.9 times more risk than women who did not fall under these categories. Being black ranked fourth with 1.8 times more risk. Current IUD use ranked fifth, with 1.6 times more risk compared to non-IUD users. Although the study did not find that IUD users with more than one sexual partner had higher risk than IUD users with only one partner, the authors argued that because having multiple sex partners increased the risk of PIDs in general, "the potential muiltiplying effect of a

comparatively small relative risk that is related to IUD use may be quite substantial in terms of the actual number of cases that can be attributed to IUD use in this group of women" (Burkman, et al. 1981: 275).

When the data from the same study was reanalyzed by Lee, et al. (1998), they concluded that IUD users who reported having only one recent sexual partner and were currently married or cohabiting with her partner had negligible increase of risk of PID compared with non-IUD users. Previously married or never married IUD users who reported having only one recent sexual partner had an increased risk of PID compared to non-IUD users by 1.8 to 2.6 times. From these results, the authors deduced that IUD users in mutually monogamous relationships have no increased risk of PID whereas women who are not in mutually monogamous relationships are at increased risk. After adding a disclaimer that they have no evidence to back up their hypothesis, authors speculated that sexually transmitted pathogens may account for the increased cases of PID and that the promiscuous sexual activity in the woman's sexual partner among previously and never-married women may be the source of increased cases of PID in these women.

Cramer, et al. (1985), who considered the association between prior use of an IUD and subsequent infertility, similarly observed that "women who reported having only one sexual partner had no increased risk of primary tubal infertility associated with IUD use" (941). When non-IUD users had more than one sexual partners, the risk of developing PID was 1.5 times more than people with one partner. When copper IUD users had more than one partner, risk increased by 2.8, and for other IUDs, the risk multiplied by 4.2.

The authors warned against overstating the importance of number of sexual partners as a contributing factor. The report nevertheless highlighted its significance.

These scientific texts suggesting the relationship between number of sexual partners and the risk of contracting PIDs were sufficient to neatly localize IUD risks to promiscuous sexual behavior. These studies generated a profile of a safe IUD user, namely a woman in a mutually monogamous relationship with no prior history of PID, while they also effectively located the blame for getting infections on the women's and/or their partners' sexual behavior. The timing of these research coincided with the mounting litigation against A. H. Robins, whose lawyers took advantage of this specific aspect of IUD research. Dalkon Shield defendant lawyers insisted on asking the plaintiffs about their personal sexual life and blaming the women's promiscuity as the source of their injuries. Their tactic intimidated women who contemplated suing the company.

A woman in a stable marital relationship is imagined to have mutually monogamous sexual relationship that decreases the risk of being exposed to STDs. Her body is believed to bear smaller risk of contracting PIDs that originate in STDs. A woman who is not in a stable marital relationship, on the other hand, is imagined to either have multiple sexual partners or a partner that has multiple sexual partners, and hence risk more exposure to STDs and resulting PIDs. Her body is a product of the medical discourse that associates PIDs with exposures to STDs and the social imagination that married women have mutually monogamous sexual relationships. These imaginations have tangible results, since the safety of IUDs have now come to be defined in relationship to the profile of the user.

Constructing the safe bodies of Copper-T users

The description of unsafe IUD-ed bodies was extended to nulliparous women, or women who have never given birth to a child. The relationship between young nulliparous women and IUDs has always been ambivalent: on the one hand, there has been some hope that IUDs would pregnancy in young nulliparous women, while on the other hand, whether the method was suitable to this group of women remains uncertain. Scientists and family planning programmers involved in IUD development and distribution during the 1960s observed that nulliparous uteri did not tolerate the device as well as parous ones. Spontaneous expulsion rates were as high as up to 20 per 100 women-years, causing high rates of unwanted pregnancy (Population Reports 1973). The 1968 WHO report stated: "IUDs are less suitable for women who have never been pregnant because insertion in these cases is more often associated with pain and expulsion and, occasionally, with syncope (cervical shock)" (WHO 1968: 27). Hence most of the early major studies involved parous women. Attempts were made, nevertheless, to develop IUDs suitable for nulliparous women. Inventors of the Lippes Loop, Buring Bow, Perma Spiral, Saf-T-Coil and Dalkon Shield all experimented with smaller models that were presumed to "fit" smaller uteri, which were sometimes labeled "for nulliparous females."

It appears that the Population Council was not particularly aggressive about pushing IUDs on nulliparous women in developing countries, partly because they recognized that the device was not well-tolerated by these women, but perhaps also because the organization's overall goal was met by stopping additional pregnancies after women had had births. Nevertheless, when the Copper-T came out, researchers were hopeful that the new device would be "a very suitable method of contraception for

nulliparous women" because it presented retention and pregnancy rates in nulliparous women that were "encouragingly different from those with inert IUDs" (Mishell, et al. 1973: 14). Initial Copper-T studies showed that the overall retention rate was about 75%. Removal due to bleeding for nulliparous women was 10%, which was higher than multiparous women using the Copper-IUD, but not worse than the rate of discontinuation for multiparous women using the Lippes Loop. The authors hence concluded that the copper T device is "easily inserted and well tolerated by adolescent girls" (Mishell, et al. 1973).

IUDs are neither actively promoted to nor withheld from nulliparous women in developing countries as a whole, although practices in different regions vary. The WHO Scientific Group's eligibility guidelines for Copper IUDs published in 1995 judges that for women who are childless or age 20 or younger, the "advantages generally outweigh theoretical or proven disadvantages, and copper-bearing IUDs generally can be provided without restriction in these conditions" (Population Reports 1995: 28). The group's position is that while for women falling under this category, IUD expulsions are more likely than in older women or women with children, these conditions do not inhibit nulliparous women from using the device. The WHO guideline lists "high risk for STDs" as a condition in which "copper-bearing IUDs are usually not recommended, but a doctor or nurse may make an exception in individual cases" (ibid: 29). Being young and childless in themselves are not a contraindication, but since being and childless women are believed to be engaged in sexual activities with multiple partners, judging their risk of STDs has become the deciding factor for IUD use.

In the United States, memories of the Dalkon Shield crisis shape the attitude towards nulliparous women's use of the IUD. The Shield was aggressively marketed towards nulliparous women after its inventor Hugh Davis announced that his "nullip" model was designed specifically for nulliparous uteri. Part of what drew the medical community's attention to IUD safety issues was the fact that those who had died of septic abortions were mainly younger, white, married women (Cates, et al. 1976), which contradicted generally accepted statistics showing that deaths from spontaneous abortions were usually highest among older, non-white, unmarried women. The 1974 article in *Science* also noted that the Dalkon Shield was believed to be inserted in young, high fertility women who have not had children (Culliton and Knopman 1974). What I know anecdotally is that during the early 1970s university health centers were distributing the nulliparous model of the Dalkon Shield to college female students in order to prevent pregnancies that may have led to illegal abortions. The Dalkon Shield fallout, which resulted in many young sterile women who have never had a chance to bear children and in subsequent lawsuits, left a strong impression on the medical community that inserting IUDs in nulliparous women was especially unwise.

A great deal of ambivalence has been expressed by medical professionals about IUD use in nulliparous women. One of them, for instance, asserted:

> To the woman who has never had a child and is attempting to choose a contraceptive, it should be emphasized that use of an IUD may double her risk for tubal infertility over the risk from use of other methods… an IUD should not be a method of first choice for nulliparous women, with the possible exception of women with a single partner at low risk of sexually transmitted diseases. For the woman who has had one child and desires another, the use of copper devices may offer a relatively safe, if not risk-free, alternative to other methods. (Cramer, et al., 1985: 947)

The authors are favorable toward the use of IUDs by women who have had children, suggesting that they would be less likely to be disturbed by an unfortunate incident of

infertility stating that: “multiparous women are unlikely to consult a fertility specialist and hence least likely to regret the decision to use an IUD” (ibid). Behind this statement is the assumption that women who become infertile after having borne children are less likely to sue medical professions and pharmaceutical companies for damage than women who never had the opportunity to bear a child.

There is no clear “scientific” contraindication for nulliparous users. Being childless is not a medical case against IUD use, but rather a social one. In France, medical standards forbid physicians from prescribing IUDs to childless women. Risk of infection and subsequent sterility are cited, but not because the risk is higher for childless women, but because the “consequences are considered more serious for this group” (Toulemon and Leridon 1998: 117). When Gynopharma advanced to market the Copper-T in the United States in 1988, the company chose the product name “ParaGard” believing that the name would suggest to doctors that the IUD was appropriate for parous women (Population Reports 1988). Today in the United States, both the Copper-T ParaGard IUD and the hormone-releasing Mirena IUD are specifically marketed towards “mothers.” The ParaGard IUD website recommends the product only to moms and explains that the reason for not recommending the device to nulliparous women is that the device is not well-tolerated by them, rather than citing the risk of infection. While IUDs are generally recommended for and marketed towards parous women, no clear guideline exists in the United States. Canavan (1998) notes that “most physicians have not offered the IUD to nulliparous patients, fearing the risk of infection-related infertility; however, if the patient has no contraindications and understands the risks, many physicians have found the IUD an excellent contraceptive for these patients.” The idea

that “mothers” are ideal users rise from a number of assumptions including that young women are prone to contracting STDs, nulliparous uteri do not tolerate IUDs well, and women who have had children are less likely to be affected should they experience infertility. “Mothers” as suitable IUD users emerged out of scientific discourses and social imaginations that construed women with children as engaged in safe sex and less inclined to litigation.

As already noted in chapter three, 300,000 women sued A.H. Robins, and millions more were affected by the Dalkon Shield. When we look at the IUD in light of race and class, it is remarkable that there are no class boundaries when it comes to people whose lives were destroyed by the early devices, the Shield in particular. I want to emphasize here that many women’s experience with the IUD is closely tied to their and their mother’s and aunt’s experiences with the Dalkon Shield and other early devices that resulted in injury and infertility. These memories of the injured IUD-ed bodies are not easily erasable, no matter how effectively the medical discourse has reconstrued the IUD as a safe technology.

Yet, for the new generation of IUD users and for users overseas, the IUD is not necessarily a fearful device. The Copper-T is physically very different from the Dalkon Shield. Improvement of the technology itself, however, does not ensure safety. Much improvement has taken place between the 1970s and the present, including proper insertion technique, screening out patients with medical contraindications, and prompt discovery and treatment of infections. The Copper-T survived the Dalkon Shield crisis – by effectively arguing that the devices were physically different and by arguing that injuries can be avoided if high-risk users were screened out. The safe body/technology

relationship has been co-produced through scientific research that redefined the ideal IUD user as "a woman in stable marital relationship or an older woman who has already had children" (Population Reports 1982: 102). This definition, now embodied in the Copper-T IUDs, depart from the imagined users of the 1960s and 70s, who were only differentiated by whether or not they accepted the method and their uteri accommodated the device.

(Re)Imagining the Bleeding IUD-ed Bodies

This section illustrates the construction and reconstruction of the bleeding IUD-ed bodies produced through medico-scientific discourses that subscribed to divergent social ideas regarding the impact of menstruations on women's lives. Soon after IUDs were first widely distributed to developing countries with high expectations that the device will provide the solution to the perceived need to manage population growth, population control advocates found out much to their disappointment that heavy bleeding and cramping associated with IUD use led to high rate of removals. Reducing so-called "side effects" became one of the critical research agenda for improving the "effectiveness" of the device for population control. Part of the success of the copper-T model has been attributed to the fact that the plastic frame that was smaller than previous models contributed to ameliorating unfavorable side-effects. Making an IUD out of a silicone capsule containing the same type of hormone used in pills was initially conceived as a means to improve pregnancy prevention, but it was quickly recognized that releasing progestin in the uterus had the potential of improving the method's continuation rates by reducing side-effects. The perceived advantage of hormone-releasing IUDs shifted over

time, however, as interests in the model shifted from population control to commercial marketing. Representations and meanings of bleeding IUD-ed bodies were simultaneously transformed as the technology took on different meanings. With the most recent hormone-releasing IUD, Mirena, the bleeding bodies belong to individual Western consumers rather than the "mass" articulated in the population control discourse. By tracing the history of the hormone-releasing IUDs, this chapter demonstrates how body/technology relationships have been produced through socio-political and medico-scientific imaginations.

The bleeding bodies of the "mass" users

The early plastic models, more so than the Copper-Ts, tended to cause heavier and irregular bleeding patterns as well as painful menstrual cramping, which contributed to high discontinuation rates. From the point of view of "mass" population control, high failure rates were somewhat tolerable as long as the overall results reduced fertility rates. This kind of thinking, however, was not acceptable if IUDs were to qualify as modern scientific contraceptive method. IUD developers during the 1960s and early 70s strived to improve the method's "effectiveness" as measured both by pregnancy rate and retention rate. Retention rate was especially important because the device's advantage was supposed to be its long-lasting effect. Both spontaneous expulsion and removal due to medical and non-medical reasons were bringing IUD retention rates down. Hence, as I described in the first section of this chapter, much of the early research efforts focused on designing IUDs that "fit" the uterus well and looking for models that showed high retention rates in statistical studies.

Despite evidence that users requested IUD removal due to pain, physicians often dismissed pain as psychological. Those who wrote about the appropriate use of the IUD with other physicians as readers in mind remarked that the "psychological must be separated from the physiological" and that "we must assure the patients that they don't need to remove the device" for the reason of pain. Interviews with IUD users also attest to the excruciating pain that early models and unawareness of risk of PID that were imposed on women, but quite often brushed aside by their healthcare providers. In addition to the stubborn belief that pain is psychological, pain was also difficult to quantify. Bleeding, on the other hand, could be measured, and hence received more attention from scientists and family planning programmers. Both medical and social reasons were cited as to why bleeding is a concern that needs to be dealt with. Anemia was found to be four or five times more common in IUD users than in nonusers in developing countries (Population Reports 1975), and this raised the concern that excessive blood loss can exacerbate existing health problems and iron deficiencies in people who are already affected by malnutrition. Social aspects of women's lives were disrupted by irregular bleeding where customs prohibit menstruating women from cooking certain food, carrying on their usual household tasks, performing religious rites, or engaging in sexual intercourse. For people who were trying to improve the acceptance of IUDs by developing country users, prolongation of bleeding or midcycle spotting that disrupt personal and household routines was a problem because they saw that "not only the IUD user but also her husband or mother-in-law may insist on removal of the device" (Population Reports 1979). Hence, by 1975, "the development of a 'bloodless,

comfortable IUD'" had become one of the priorities of IUD research funded by the USAID. (Population Reports 1975: 38).

Scommegna, et al. (1970) conducted one of the first studies of hormone-releasing IUDs in an effort to enhance contraceptive effectiveness. He was clearly motivated by the perceived need to invent a more effective contraceptive method for developing countries. Referring to the pill, Scommegna, et al. wrote: "the more advanced countries have accepted this form of contraception readily; however, lack of sophistication and motivation in the less advanced countries has curtailed its impact on population control" (201). They believed that IUDs offer an "alternative answer" to the pill, and explain their motivation for studying the effects of hormone-releasing IUDs in monkeys and human volunteers as an effort to improve the device's rather high failure rate, which at the time was 2.3 to 10.8 per 100 women. After inserting silicone capsules containing progesterone attached to a Lippes Loop in Rhesus monkeys and women and studying changes in the endometrial tissue, researchers concluded that there are three advantages for adding hormone-releasing mechanisms to IUDs. First, administering hormones directly in the uterus increased the contraceptive effectiveness of the IUD to a degree comparable to the pill, without causing systemic side effects of the hormone. Second, the action of the progesterone decreased uterine contractions and thereby decreased the expulsion rate of the device. Third, vaginal bleeding and spotting episodes usually associated with the use of the IUD were decreased. The device Scommegna tested, however, only lasted for twelve weeks, a period "too short for such a hormonal device to be meaningfully used in population control" (ibid, 209). A couple of years later, Alza Corporation of California started marketing Progestasert, a hormone-releasing IUD with

advertised pregnancy prevention rate of 99%. This model, however, had to be replaced every year, which was not sufficiently long enough to compete with existing IUD models for mass application.

The 1982 Population Reports noted that progestin-releasing IUDs have the advantage of reducing menstrual bleeding well below pre-insertion levels or reduce the volume of blood loss by as much as 40 percent. The report suggested that this could be an important asset where many women are anemic. Bleeding-reducing effect of hormone-releasing IUDs, first recognized in Scommegna's 1970 study, may have raised some hopes among IUD developers and promoters that hormone-added models will eliminate unfavorable side-effects and improve the acceptability of IUDs in developing countries. The removal rate due to bleeding and pain with progestin-releasing IUDs, however, was similar to or higher than copper or unmedicated devices. Hormone-releasing IUDs had the effect of reducing bleeding too much, causing amenorrhea for some, and occasionally increased the number of days of bleeding, all of which were equally unacceptable for women as having heavier bleeding and pain.

The 1981 WHO study on women's perception of menstrual bleeding in 14 cultural groups explain why changes in bleeding patterns account for significant proportion of discontinuations of not only IUDs, but hormonal methods as well.[84] The majority of women in all countries and cultures investigated did not want to see change in the quantity of menstrual bleeding. Of the remaining minority, most women preferred less rather than more blood loss. Common reason women gave for preferring less blood

[84] WHO (1981) investigate the perception of menstrual bleeding among 5,322 parous women from 14 cultural groups in Egypt, India (Hindu High Caste, Hindu Low Caste), Indonesia (javanese, Sundanese), Jamaica, Korea, Mexico, Pakistan (Punjab, Sind), Philippines, UK, and Yugoslavia (Muslim, Non-Muslim).

loss was that with less blood loss, they would be fitter, stronger, and healthier. General dislike of menstruation, inconveniences, and embarrassment were mentioned as well. Women who preferred more blood loss felt that this provided an assurance that they were not pregnant, sterile, or entering menopause and that all "bad" blood was being removed from the system. Some women felt that lighter period was a source of discomfort caused by the restriction of blood within the body. The study concluded that the majority of women are not prepared to accept a contraceptive method that induces amenorrhea because women believe that if bleeding were stopped, their health will be impaired. For many women, menstruation is an outlet for bad or poisonous blood, a natural process that is dangerous to tampered with, and a sign of fertility.

During its early days, the hormone-releasing IUDs were imagined inside the bodies of the "mass," providing more reliable contraception that did not get rejected for heavy bleeding and cramping. This formula never quite actually took shape because at first the model did not last long enough to be effective for mass population control, and then because it induced other changes in menstrual patter that was unacceptable to women. Both bleeding and non-bleeding bodies of IUD users were prone to discontinuing the device, and physical modification to the device (i.e. adding hormones) simply did not enhance the IUD's acceptance among female users and its ability as a population control tool. The bodies that hold hormone-releasing IUDs had to be drastically reimagined for the model to have a meaningful application.

The non-bleeding bodies of the liberated Mirena users

Longer lasting hormone-releasing IUDs had to wait for the invention of a "super-progesterone" that has a high potency per unit weight which would allow the hormone to last much longer. The development of the long-lasting hormone-releasing IUD, marketed under the name Mirena, paralleled the development of Norplant, which is a contraceptive method that slowly releases progesterone subdermally. Sheldon Segal and his colleagues at the Population Council had started testing the idea of "under-the-skin-pill" with animals as early as 1967. The "under-the-skin-pill" basically consisted of silicone capsules filled with a type of progesterone, which were implanted under the skin and gradually released the hormone that suppressed fertility. Until early 1970s, however, all progesterone-like hormones used for contraception were derived from natural precursor materials of either animal or plant origin, which required a dose significantly larger than do today's synthesized hormones in order to achieve contraceptive efficacy. In other words, the same amount of hormone did not last as long as it does today. The invention of synthesized progestin began the second generation of orally active progestins used in contraceptives. The Population Council selected a "super-progesterone" named norgestrel. Norgestrel had the exciting feature of high potency per unit weight for the development of their subdermal implants, which would last a long time. One of the scientists on the research team, Tapani Luukkainen from Finland, came up with the idea of using norgestrel in hormone-releasing IUDs, which resulted in Mirena that lasts for five years – much longer than previously available hormone-releasing models.

Mirena was eventually co-developed by the International Committee for Contraception Research (ICCR) of the Population Council and the pharmaceutical

company Leiras Oy in Finland. The method was tested during the 1980s involving 8,800 women in 17 countries. These included a seven-year trial conducted by the Council in the United States and five developing countries (Population Briefs 1996). Mirena was first marketed in Finland in 1990, and by 2003, it was approved in more than 80 countries and was being used by more than 2 million women (Population Briefs 2003). The Population Council emphasizes the "therapeutic benefits" of the device, which is associated with the thinning of the uterine lining induced by the hormone. To be more precise, the progestin released directly into the uterus has the effect of suppressing the proliferation of endometrial cells that normally increase after a woman's period ends in preparation for pregnancy. The endometrial cells shed as menstrual blood during the next period if the woman does not get pregnant. In other words, the progestin keeps the uterine lining from thickening, which results in fewer shedding cells and hence less bleeding. Cramping is lessened as well since the molecules secreted from endometrial cells that cause uterine contractions are reduced at the same time. Thinning of the uterine wall is believed to work in conjunction with thickening of the cervical mucus and other uterine environmental changes that result in incapacitating the sperm from migrating to the fallopian tube and fertilizing the egg.

The Council hails Mirena as not only a reliable contraceptive method, but also one that "promotes health." Mirena presumably can be used to reduce menstrual pain, treat menorrhagia (excessive menstrual bleeding) that is associated with fibroids, reduce hysterectomy practiced as treatment of fibroids, protect women against anemia, and prevent endometrial cancer for women on estrogen replacement treatment by emitting progestin directly in the uterus to counter the estrogen effect that cause the excess

proliferation of endometrial cells. Elof Johansson, the director of Biomedical Research at the Population Council, explains that Mirena "puts the endometrium to rest." When we look back on how during the 1960s scientists imagined that IUDs made the uterus "act up," the rhetorical shift is intriguing. Just as the bodies of population-control IUD users were imagined against the backdrop of the population war discourse, the therapeutic bodies of Mirena users are produced through the perceived medical need to treat excess proliferation of the endometrial cells and to reduce bleeding.

Mirena users are imagined as women who welcome intrauterine therapy. In addition, Mirena is presumed to liberate women from having periods. When Gregory Pincus developed the oral contraceptive during the 1950s, he established the 28-day cycle that mimics normal menstrual cycles because he believed that women would not accept a method that resulted in them not having periods. Hence, pill users take hormone pills for three weeks and sugar pills that induce menstruation for one week. Nelly Oudshoorn (1994) argued that the pill constructed female bodies that are shaped by the 28-day regimen. Today, scientists are reconstructing the female bodies as ones that are liberated from having periods. In their book, "Is menstruation obsolete?" Continho and Segal (2003) argue that "menstruation is an unnecessary, avoidable byproduct of the human reproductive process" (163). They argue that regular and recurrent menstruation throughout most of a woman's reproductive years is a fairly recent phenomenon because when women nursed babies for an extended period of time and had more births, women had very few periods during their reproductive years. They contend that the common perception that menstruation is a "natural event" that is beneficial to women in some way

has no scientific basis. They envision that women would welcome medical manipulation of menstruation intervals. They write:

> With the cooperation and supervision of their physicians, women would use currently available means to stop menstruation for several months and, growing more confident, would lengthen the menstruation-free interval. (Continho and Segal 2003: 163)

Furthermore, the authors argue that women will be healthier and more liberated by stopping menstruation. They end the book with the following section:

> This would forge a major advance in women's health, led by women. Today's proposal would become tomorrow's new paradigm. The pioneer feminist Margaret Sanger wrote "No woman is completely free unless she has control over her own reproductive system." Let this new freedom begin. (ibid: 164)

The authors subscribe to the idea that biology holds women down and propose to liberate them from their biology – under the "supervision" of a physician. Mirena causes one in five users to stop menstruating all together, or get amenorrhea, which was formally described as a side-effect. The new discourse of liberating women from their periods allows IUD users to be imagined in a completely different paradigm than where we started in the beginning.

In addition to women who seek relief from excess bleeding or simply want to stop having periods, Mirena is sold to "mothers" who are busy and want a hassle-free method. Promotional materials for Mirena appeal to new mothers by suggesting that busy women like them don't have time to worry about taking the pills or using condoms, or even about their periods. Mirena's promotional material is scattered with images of happy (white) families with more than one children (strolling on the beach). The device as a long-term reversible contraception is also marketed as an alternative to tubal sterilization.

Altogether, Mirena is positioned as the "birth control that lets you enjoy today and be confident about tomorrow."[85]

Race, class, nationality, and IUDs

Bodies imagined in the Mirena discourse depart radically from the dark "mass" female bodies that are in need of contraceptive methods to limit their fertility. When hormone-releasing IUDs were expected to fulfill population control needs, users' bodies were actively imagined in medical texts as prone to anemia and requiring IUDs that made them bleed less if they were to stay on the method. Gradually, however, developing country women drop out of the picture of hormone-releasing IUDs as it became apparent that early models did not last long enough to be effective for population control and that women were resistant to changes in bleeding patterns that sometimes led to amenorrhea. The relative success of copper-releasing IUDs and the appearance of other long-acting contraceptives such as Norplant and Depo-provera also contributed to less urgency in developing hormone-releasing IUDs for developing countries. Imagined users of hormone-releasing IUDs shifted to women who suffered menorrhagia as well as to upper-middle-class-emancipated-women, who welcome medical intervention in relieving them of a number of burdens such as having heavy periods and paying attention to contraception. Ironically for a method that was once conceived to alleviate anemia, a condition more prevalent in developing countries, Mirena is not easily available to women in developing countries due to its cost. (As of 2001), USAID has not been able to negotiate an acceptable public sector price with Mirena manufacturer Schering. In other

[85] Mirena promotion material.

words, USAID is unwilling to procure a large amount of Mirena for overseas distribution when the Copper-T is considered an excellent and inexpensive alternative.

The history of hormone-releasing-IUDs demonstrate how body/technology relationships were produced and reproduced while simultaneously constructing the users, their needs, and the role of the device. Race and class of IUD users imagined through social and medical discourses has shifted from the "mass" to "moms" as scientists negotiated and renegotiated the value of hormone-releasing IUDs. This example supports my overall thesis that the representations of IUD-ed bodies are products of socio-political imaginations and medico-scientific discourses.

Chapter Six: IUDs and Reproductive Self-Determination[86]

Women's Desire, Reproductive Norms, and Population Policy

Women in developing countries comprise the majority of IUD users.[87] Have these women been subjected to population control and oppressed by the provider-controlled feature and health risks of the IUD? Or have IUDs offered women opportunities to control their own fertility as autonomous individuals? Are these women now rational users that welcome more choice and accessibility to contraceptives? Or are they experiencing the tension felt between the two contradictory goals of granting individual reproductive rights versus limiting population growth? How do women themselves manipulate the IUD to pursue their own desires? What kind of negotiations are women involved in when engaging with contraceptives?

A number of anthropological works attest that women in different parts of the world engage in various kinds of struggles over reproductive choice within a complex network of nested interests over fertility (Ginsburg and Rapp, 1995; Greenhalgh, 1995; Petchesky and Judd, 1998; Russell, Sobo, and Thompson, 2000). Ethnographic accounts of IUD users provide vivid images of women and their reproductive struggles that are unavailable otherwise. This chapter relies on narratives told by researchers who have observed local values and practices of fertility control as a part of their demographic research, development project, and/or anthropological work. I retell their stories to illustrate the variety of ways in which women struggle for reproductive self-

[86] This chapter appeared as part of Takeshita (2004).

[87] Based on the 1990 statistics in Mauldin and Segal (1994), at least 83% of the users reside in the developing world.

determination using or rejecting the IUD. These stories show that women who use the IUD are not best characterized as users who simply choose the IUD to meet their need for contraceptives. Women's liberty to decide on their reproductive lives and the choices they make are significantly influenced by cultural values, social norms, state policies on fertility control, and interests of others who have a stake in women's fertility. The position the IUD occupies in each woman's reproductive struggle is a complex function of reproductive norms constructed through policy and culture, other contraceptives that are available, and conflicting desires of women, their family, and health care workers. Because their reproductive struggles are embedded in the society in which they live, helping women negotiate reproductive self-determination will take far more than distributing reliable contraceptives.

Displacing and Reinterpreting the IUD: Etiki Women in Nigeria

I start this discussion with Renne's (1997) account of the contrasting perception of the IUD between Nigerian health care workers and Etiki Yoruba village women in southwestern Nigeria. The Nigerian family planning officials have adopted the view that family planning is desirable and that fertility should be scientifically and safely managed by modern contraceptive technologies. They associate the IUD with positive implications related to Western technology and perceptions of progress. The Etiki village women, however, have a completely different set of expectations about fertility control and the role of IUD. They are more interested in protecting their fertility and relate to the IUD with concerns of infertility. This example rather clearly shows that offering the IUD

as a neutrally enabling method for women who want to limit birth is not always interpreted as such in the local context.

Etiki women's reproductive desires are constructed through their cultural values, which deem it important for a woman to "demonstrate her fertility through the regularly spaced birth of children rather than attempting to limit fertility, for such life and death matters are ultimately up to God" (Renne, 1997: 1142). Some Etiki women consider controlling fertility morally wrong as an affront to god and as a sign of neglecting motherhood. Most importantly, they fear infertility since women who cannot bear children have a greater social disadvantage.

In Etiki women's cultural framework, the IUD is associated with infertility caused by external intervention rather than as an effective contraceptive that meets a woman's need to limit fertility. In the Etiki language, the IUD is called "turning the uterus," which is an indigenous concept that refers to infertility brought on through agency of someone with supernatural power at the behest of an ill-intentioned individual. Only individuals with extraordinary knowledge, such as traditional divine healers and witches, are believed to be capable of causing the uterus to turn and make a woman infertile. Only these powerful individuals can "turn back" the uterus to restore fertility. Women relate to the IUD with this traditional belief because IUDs require an insertion into the uterus by another powerful stranger, the medical doctor, and fear that the IUD may lead to an indefinite infertility. Renne points out that there are other factors that contribute to the Nigerian women's aversion to the IUD, such as distrust in the government to continue providing health care that women may need for treating side-effects and removing the

IUD. She asserts, however, that the cultural association of the IUD to "turning the uterus" plays a significant role in Ekiti women's resistance to the IUD.

In this particular cultural and geographical context, the IUD is not seen as a contraceptive that fulfills the need of women who want to prevent unplanned pregnancy. Ekiti women have displaced the IUD from the scientific framework that deems it an effective contraceptive method and have reassigned it a culturally meaningful significance. From their perspective, resisting the IUD and thereby resisting the intervention by powerful individuals – whether they are witches, medical doctors, or the government – is a significant part of maintaining control over their own fertility.

Resisting the IUD and State Control: The Case of Rural Chinese Women

IUD use in China is an example in which the government deliberately mobilized the device to control fertility in its country. Chinese women comprise 60-70% of the more than 100 million IUD users around the world (Mauldin and Segal, 1994). China's population control policy has been known to be very stringent and is often described as oppressive to individuals.[88] Since the state set its goal in 1979 to reduce the average fertility rate to one child per couple and achieve a negative population growth, the government has taken elaborate direct and indirect measures to meet its goal. Techniques include economic incentives for limiting births and economic disincentives for having more than one child as well as reproductive policing activities carried out by local birth

[88] For more discussion on fertility control in China by feminist scholars, see Anagnost (1988), Greenhalgh (1994), and Greenhalgh and Li (1995).

control cadres who are assigned birth quotas and targets. As a result, contraception usage leapt from near zero to 50 or 60 percent in two decades. Although the government officially disapproves of coercive practices such as involuntary sterilization and forced abortion, reports of such practices have been made by the media, human rights activists, and anti-abortionists. As a result, China's population policy has received much international criticism.[89]

State policies have had a great impact on the reproductive norms and desires of Chinese citizens. Greenhalgh (1994) points out that Chinese village women's fertility desires are shaped by what the community considers as the norm or ideal, which is strongly influenced by the state mandate. Villagers in Shaanxi province during the late 1980's considered one boy and one girl an ideal family size, believing that it was crucial for their wellbeing to raise two children, at least one of whom was a son.[90] While the number of children that the villagers generally desire exceeded the state's one-child-per-couple mandate, the villagers' view on the ideal family composition was in fact strongly colored by the long-term state propaganda for small families and reflected the villager's acceptance that reproductive possibilities are limited under strong state control. Furthermore, as Greenhalgh contends, "by embodying state demands in their conscious reproductive aspirations, the peasants were not only accepting, they were also unwittingly reproducing state control over their childbearing" (12).

[89] For an exemplary critique of China's population policy, see Aird (1990). The United States government has withheld funding to the UNFPA, perceiving the organization as colluding with the coercive Chinese population policy. (While UNFPA works in China, it denounces all forms of coercion in family planning.) I should also note that U.S. policy makers often use their opposition to China's population policy as a political tool to negotiate family planning aid policies (Takeshita, 2001).

[90] Son preference in rural China has been extremely strong to the extent that giving birth to baby girls have led to violence against or the abandonment of the mother and daughter (Croll, 2000).

The Chinese government has positioned the IUD as one of the major tools of fertility control, much the same way as it was conceived by the U.S. and international population control advocates of the 1960's. During the past few decades, the IUD, along with sterilization and abortion, became an indispensable tool for local birth cadres, who were directly responsible for controlling fertile bodies under strong pressure from the government to achieve low birth rates (Greenhalgh, 1994). The two low-cost, highly effective, provider-controlled procedures, namely IUD insertion and sterilization, which involve only one-time application and little or no attention afterwards, are for the most part the only methods available to the rural population.[91] User-controlled contraceptives such as the pill that allow users to terminate the method whenever the users wish never accounted for more than two or three percent of contraceptive use in the villages that Greenhalgh studied. Pills were only available to women physically unable to use an IUD – a choice made by local health officials, not by the women themselves.

Chinese women have not simply passively accepted contraception imposed by the state. Greenhalgh (1994) reports from villages in Shaanxi province that Chinese village women resist policy provisions by illegally removing the IUD. She believes that the heavy penalties stipulated for unauthorized IUD removals suggest that such practice is common and a problem for the population policy enforcers. Among the 18 women who lost their IUDs in 1988 in villages in the northwestern province of Shaanxi, two thirds of them told Greenhalgh that the IUDs were spontaneously expelled or simply fell out. Women are unlikely to voluntarily disclose that they have unlawfully and intentionally removed their IUDs, and therefore it is difficult to assess how many IUDs were actually

[91] China's country wide statistics according to the Center for Reproductive Law and Policy indicate: 41.1% IUD, 36.6% tubal ligation, 11% male sterilization, 3.8% pills. http://www.crlp.org.

spontaneously expelled. Greenhalgh argues that the loss of the IUDs could well have been motivated by a desire to conceive, judging from the fact that the majority of women who lost their IUDs became pregnant within three months. Greenhalgh surmises that the response "it fell out" may be a convenient gloss for "it was illegally removed," and suggests that unauthorized IUD removal is a strategy women use, despite the health risk that it entails, to resist the state policy's provisions to allow them to only have one child.

These resistances, however, should not be interpreted as an 'autonomous decision' or a purely individual choice. Greenhalgh points out that a woman's decisions to "resist" or "accept" the IUD may be influenced by whether or not her family composition meets the community norm of two children with at least one son. The number of children they had at the time the IUD was inserted suggests that the women who told Greenhalgh that the device fell out desired another child, especially a son. In other words, these women's reproductive aspirations were shaped by the community norm, and when they resisted state control over their fertile bodies, they were acting as an agent of their families while also asserting individual reproductive choice.

Local birth-planning cadres play an important roll in reproductive struggles in rural china. Cadres are more often than not cornered into a tight spot that requires them to mediate between the state mandate and desires of village women and families. Croll (2000) reports that Chinese villagers assisted other villagers who were trying to have a son by helping them carry their second or third pregnancy to term without being detected by birth officials. In one of the villages, resistance from the villagers pressured the birth cadres to keep "one eye open and one eye closed" (84) to unauthorized pregnancies. The local birth planning cadres in the villages Greenhalgh studied also faced strong resistance

from villagers who desired more than one child and at least one son. The birth cadres were compelled to negotiate new terms of policy enforcement whereby they would exercise stricter control over those who attempted to exceed the village norm but offer leniency towards villagers who had not yet met the ideal family composition even though this violates the formal policy (Greenhalgh, 1994). In other words, unauthorized IUD removals and subsequent pregnancies were tolerated when they were conducted by women whose families were too small by community standards. Birth cadres were less likely to allow a woman who already has two children with one son to have another child after she illegally removed her IUD.

At first glance, the IUD in Chinese villages appears as an oppressive tool that removes control over reproduction from women. In a number of cases, however, women resist state intervention and strive to meet their reproductive goal by escaping the fertility control of local birth control cadres or by pressuring them to redefine the terms of reproduction. Greenhalgh's account demonstrates that negotiation over reproduction in rural China takes place among a network of interests woven by state mandates, community standards, local health officials, family expectations, and individual desires. IUDs are manipulated in these negotiations to impose government control over fertility, to resist state intervention, and to punish or tolerate women who contravene community norms. The IUD plays a fluid role in the negotiations over reproductive choices rather than solely as an agent of power for the authorities.

On a slightly different note, China has been experimenting with incorporating the Cairo consensus into their population policy.[92] The United Nations Population Fund

[92] According to the UNFPA website (2001): http://www.unfpa.org/regions/apd/countries/china.htm

(UNFPA) is working on a four-year, $20 million project with China on an experimental program in 32 model counties, where birth quotas are eliminated, health officials are trained to cater to individual choices, and a variety of methods are offered to clients (UNFPA, 1997; Takeshita, 2001). As a part of this project, rural women were provided with literacy training and micro-credits to earn their own income, which in turn raised the status of the women in their families and led them to become aware of their ability to take an active role in making reproductive choices.[93] We have yet to see whether the UNFPA project will render results that satisfactorily meet the Chinese government's expectation to curtail population. Whether or not the concept of voluntarism will pan out in this country also remains to be seen. A group of observers that recently visited some of the counties where the UNFPA/China project is being implemented reported to the U.S. government that they found no evidence of coercive fertility control practices.[94] Yet, the Chinese government has put a law in effect in September 2002 that continues to mandate "social compensation fees" or "fee for society to bring up children" for families that exceed their birth quota. The law also requires that the woman receive sterilization after the second child. Couples that commit to having only one-child are rewarded.[95] Hence, while new variety of contraceptive methods may be added to Chinese women's reproductive choices and physically coercive fertility control may diminish, coercion

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"China attended the International Conference on Population and Development (ICPD) in 1994 and is a party to its Programme of Action. Prior to the ICPD, the Government announced its intention to move from an administrative family planning approach to a reproductive health/family planning service-oriented approach, focused on the needs of clients. This new orientation was reflected in the Guidelines on Family Planning Work in China, 1995-2000."

[93] Personal communication with UNFPA representative, March 2001.

[94] Report to the United States Department of State, June 22, 2002. (http://www.house.gov/maloney/issues/UNFPA/unfpausreport.pdf)

[95] From the website of the United Nations Economic and Social Commission for Asia and the Pacific: http://www.unescap.org/pop/database/law_china/ch_record052.htm

based on economic control may continue to impinge on women's reproductive self-determination.

Negotiating IUD Insertion: Tajikistan, Uzbekistan, and Bangladesh

The story of Zulfia, a Tajik woman, epitomizes reproductive struggles of women in the developing world who face pressure from family members to produce more children. Harris (2000) gives a brilliant account of how Zulfia used a clever tactic to convince her husband that she needed to be on birth control. Her husband wanted her to keep trying to have a son after she had given birth to three daughters. When she was in labor with her fourth child, instead of sending for a midwife, she made her husband stay and attend the birth by himself. Harris recounts Zulfia's story that filled the room full of Tajik women with laughter:

> Throughout my whole labor, I did not let go of my husband, no matter how bad things got. When finally it was all over and my fourth daughter had been born, he turned to me and said: "That was absolutely horrible. I can't let you go through it again. As soon as the 40 days are up you are to go to the doctor to be fitted with an IUD. It doesn't matter that we don't have a son. I can't face such a childbirth again." Since then I have never become pregnant again and my husband never mentions having a son. (1)

This story is a reminder that reproductive self-determination is often hard won by the women in Tajikistan as in many parts of the world and that while women have much to endure, they also "deal with their lives with ingenuity, imagination, strength, and above all laughter" (Harris, 2000: 1).

Harris provides other accounts of Tajik women's reproductive struggles that involved the IUD. Even within the same cultural setting, each reproductive negotiation differs slightly depending on the woman's relationships and circumstances. While

Zulfia's husband responded promptly with an understanding of his wife's hardship, another husband could have continued to insist on a having a son. While another Tajik woman, Tahmina, took the initiative to have an IUD inserted regardless of her husband's consent, another woman Tillo was pressured by her husband to extract her IUD so as to conceive another child. Tozagul obtained an IUD without her husband's knowledge after she had given birth to six children in seven years. When her husband tried to divorce her on the account of infertility after several years, she informed him that she had been using the IUD. Her husband divorced her immediately, outraged that years of efforts to express his masculinity through his wife's fertility was lost in "years of empty sex" (Harris, 2000: 221).[96]

Reproductive norms in Tajikistan had long been characterized by the large family tradition and pro-natalist policy under the former Soviet Union. As a product of strict gender roles, women's reproductive desires have traditionally conformed to the social expectation that they will marry an arranged partner and bear many children, including sons, to support the couple (Harris, 2000). After independence, the government of Tajikistan, influenced by UN organizations and other international agencies, accepted policies that support women who regulate their fertility (Harris, 1998). The UNFPA provided a variety of free contraceptives and funds for the government to set up nation-wide family planning centers. Procurement of contraceptives, however, has not necessarily become easy for women due to ineffective information distribution, indifference in the medical community, and expense for the users. Since the IUD was the only available reversible contraceptive method available during the Soviet era, the device

[96] The stories of these individual women are elaborated in Harris's extensive ethnographic work in Tajikistan, in which she documented women's experience with reproductive struggles and their subjection to gender roles.

remains the preferred method for a majority of women due to its familiarity (Harris, 1998). Obtaining an IUD to prevent unwanted pregnancies, which sometimes requires negotiation with their husbands, is an important part of Tajik women's control over their own fertility.

The IUD plays a similar role in Uzbekistan. Krengel and Greifeld (2000) provide the social context in which the IUD is characterized and utilized in Uzbekistan. Uzbekistan, like Tajikistan, is a predominantly Islamic nation that became independent in 1991. Reversing the pronatalist ideology of the Soviet era, the Uzbekistan government launched a large family planning program, regarding improvement of maternal and child health as one of the strategies towards strengthening the new nation. The high rate of anaemia in women caused by environmental problems and high birth rates are now officially seen as major causes of the unsatisfactory state of reproductive health. Changes in government family planning policy as well as the comeback of the Islamic culture serve as an important backdrop to the ways in which reproductive preferences are negotiated through the manipulation of the IUD.

Values and practices surrounding reproduction in Uzbekistan were transformed with the socio-economic transitions accompanying the nation's independence from the Soviet Union. Abortion, which used to be practiced widely as a form of birth control, is now disapproved of by the Islamic religion and increasingly carried out secretly outside the public health service. Women's roles in the family and as mothers are now more emphasized compared to their role as workers. Many respondents (male and female of various ages) of Krengel and Greifeld's 2000 study expressed their belief that reproductive choice is subordinate to the wishes of husbands and elder males of the

family, or alternatively to God. Two boys and two girls, or three boys and two girls, are considered the ideal family composition. Krengel and Greifeld's respondents indicated that they would continue to reproduce if the couple has no children of one of the sexes even if the total number of children already had reached four or five.

Midwives are assigned to community health facilities to monitor the reproductive health of local women. Some midwives are responsible for up to 1,000 women while others care for 100 to 150 women. Midwives keep notes on all women of fertile age and manage them according to the classification of the national program, which consists of women who can freely conceive, women who should temporarily avoid pregnancy because they have just given birth to a child, and women who should not become pregnant due to illness or age. This last category implicitly includes women who have already had many (five or more) children, who are assumed to be in bad health due to their fecundity.

Apart from abortion, IUD was practically the only reversible contraceptive that was known or available under the Soviet Union. Since it has become difficult for women to seek safe abortions at hospitals, the role of IUD in birth control has become even greater. A 1996 survey showed that over 50% of married women were using modern contraceptive methods, and close to 90% of them used the IUD. A small number of women were using sterilization, condom, injection, or pills. IUDs are overall very well accepted mainly due to familiarity and practicality: "they were well known, simply procured, easy to care for, have high efficacy rates, and are invisible" (Krengel and Greifeld, 2000: 213).

Women's reproductive desires vary: some desire a larger family than the state policy stipulates, and others wish to limit the number of offspring. Midwives and the IUD, the former being the official manager of fertility and the latter being the most prevalent contraceptive method, play a large part in mediating women's reproductive desires. Uzbek midwives have reported that they take advantage of the surreptitiousness of the IUD to intervene and relieve women of pressure from their family to continue having more children. Quoting a midwife, Krengel and Greinfeld (2000) write: "in some such cases, it is a big relief for woman when we say, 'sit down, I shall insert an IUD for you.' The husband will not know about it. For a good purpose one can also deceive" (212). The goal of the state to limit births and a woman's desire to control her fertility converged using the same means, the IUD. The midwife, whose role is to ensure that the number of births is limited per woman, became an ally for the woman who wished to avoid pregnancy in this case.

Midwives may occasionally allow women who already have enough children or who were past their reproductive age to carry through their pregnancy. Krengel and Greifeld refer to a case of a woman of about forty years, who still wanted a baby and somehow managed to get rid of her IUD to get pregnant. Her midwife explained that she did not report this woman to the authorities because she believed that the woman was still healthy despite having had many children and thus there was insufficient reason to discontinue her pregnancy. Much like the Chinese village health officials, midwives in Uzbekistan are often forced into a position to negotiate the tension between a woman's individual reproductive desire to continue to have children and the government's policy to limit childbirth. While giving different reasoning for closing their eyes to

unauthorized IUD self-extraction, Chinese birth cadres and Uzbek midwives, who are both in charge of monitoring women's fertility for the government, mediated the negotiation between the individual woman's reproductive choice and state provisions.

In many social and cultural circumstances, women are expected to follow their husbands' and elders' will, and openly defying them may be socially disadvantageous. In these places, women often use their wits to negotiate spacing births or limiting the number of children with the help of modern contraceptives (as with Zulfia's case introduced at the beginning of this section). Stark (2000) recounts a story of Komola, a Bangladesh woman, who convinced her husband to take her to the clinic to treat her sick child and obtained an IUD during the visit without her husband's knowledge. Later, when she feared that she might develop problems with the device and need his help, she informed her husband of her contraception. Although her husband initially expressed disapproval, he acquiesced to the use of contraception when she pointed out that the couple could not afford to have more children. In Stark's study, Bangladesh women who knew that their husbands would not permit contraceptive use obtained one first without their consent and confessed afterwards. Stark explains that confessing to the husband after having secretly obtained an IUD is a strategy women use to control their fertility without upsetting their social relationships. The act of confession acknowledges the control of the husband and neutralizes his anger. Furthermore, this is a way to save face for the husband, who would then be able to claim that he never approved or knew of his wife's contraception.

As Stark (2000) points out, women and men have a great deal of ambivalence towards using contraceptives. A woman often considers limiting births as a necessity to

maintain her physical health and to reduce the economic burden imposed by a large size family. While pursuing contraceptives, women take risks of physical abuse and divorce, endure the guilt of defying household and religious authority, and potentially experience uncomfortable side effects from the contraceptive method. Men's concerns around maintaining family status in the community and their own position of power in the household often conflict with contraceptive use. An IUD may contribute to the empowerment of a woman who successfully pursues her contraceptive goals, but can also be a threat to her social and physical wellbeing. Contraceptive usage involves a great deal of negotiation between the woman, who must weigh her desire to control her fertility against potential social and physical risks, and family members and health care providers, whose interests may conflict with the woman's contraceptive use or non-use.

The secrecy that the IUD offers is a major benefit for a woman in societies where social status and security are exchanged for adherence to social hierarchy and the avoidance of openly contradicting authority figures. Not only secret insertion, but secret removal to get pregnant against a husband's desire, is another possible manipulation of the IUD that meets a woman's reproductive goal.[97] Contraceptive injections, which can easily be administered every three months by a health care worker who calls on village users or by a clinic where users can pay a visit, also offer surreptitiousness and thus are often favored. Preference for the injection method has been reported from many regions including Bangladesh. There, Depo-Provera was indicated as the most popular method, one that was "easy and left no evidence" (Stark, 2000: 185). Surreptitiousness was not an

[97] For instance, Dawla, Hadi, and Wahab (1998) refers to Egyptian women who suggested that the IUD can be secretly removed to conceive against her husband's desire to have no more children.

intentional character of the original design of the IUD, but turned out to be a rather serendipitous advantage that contributes to a woman's attempt to control her own fertility.

Subversive strategies such as secret insertion of the IUD do not challenge the social subordination of women. Tactics such as informing the husband later about IUD use to restore his authority only contributes to perpetuating the existing power structure that subordinates women's reproductive wishes to those of men's. Still yet, whether sought openly or secretly, an IUD can become a device that is manipulated to meet the goal of women who wish to limit their fertility. Indeed, as Stark contends, attempts by women to "control their fertility, and thus their social world, by using contraception" is "indicative of active, goal-oriented behavior in the face of many obstacles within the society that restrict their personal autonomy" (186).

These women's behavior to seek the IUD to limit their fertility may be interpreted as examples of women being empowered by having their unmet need for contraceptives fulfilled by the IUD. Granted that making contraceptive methods available to women is a necessary condition for women to be able to use them, women's struggles over fertility control and empowerment in societies such as Tajikistan and Bangladesh are not resolved simply through delivering contraceptives to remote areas, or "meeting unmet contraceptive needs." Women in many societies must struggle over the limited control over their fertility that is granted to them. Hence, women's social and political empowerment must be considered the primary need before women are able to freely and safely make reproductive choices.

Chapter Seven: Conclusion – Technology and the Body

As this study shows, the IUD is a contested object that embodies multiple social meanings that were imposed on the device over historical attempts to take control of fertile bodies. The social and political interests in controlling fertile bodies coalesce with the medicine, which is "itself a moral and political enterprise (bio-power) concerned with the regulation, surveillance, and control of bodies through the medical regimen" (Williams and Bendelow : 129). Technology of fertility control is situated at the intersection of "the social" and "the medical" in that the technology both regulates bodies "medically" and disciplines fertile bodies in ways that are of interest "socially," such as preventing teen pregnancy and engaging in heterosexual intercourse dissociated with reproduction. Medical "disciplining" of bodies obviously entails enrolling contraceptive users to the practice of birth control. But the other aspect of medical regulation of bodies is that it relies on the knowledge produced through science to make bodily surveillance and control plausible. Science produces bodies that can be regulated by technologies; and contraceptive technologies begin their embodiment of social meanings while being produced in science. Hence, the finest level of analysis of the meanings embodied in a contraceptive technology involves the examination of the realm of science.

The dissertation follows the device to show how control over the body is exercised through medico-scientific and socio-cultural domains, which are intertwined by the political discourses of fertility control. My close reading of scientific discourses against a social and political contexts demonstrate the reciprocal relationship between the social domain that mobilizes the scientific representations of the device in order to meet a

political goal that pertains to taking control of women's fertility and a scientific domain, which legitimizes research agendas and results by appealing to social and political needs. Through the negotiations over reproductive politics, various forms of body/technology relationships have been imagined (and negotiated). Representations of IUD-ed bodies that emerge from scientific discourses reflect the socio-political interests that scientists have projected upon them.

I examined the scientific endeavor to regulate the IUD-ed bodies as a combination of attempts to provide the right answers to several different questions including how well can IUD-ed bodies be regulated, how can risk of IUD-ed bodies be averted, what effects do side-effects have on the regulation of IUD-ed bodies, how do IUD-ed bodies function, and how can the body/technology relationship be improved? The definition of effectiveness, safety, side-effects, and mechanism of action are negotiated over time through material and discursive rearrangements that are made in order to gain or maintain acceptability of the device. Body/Technology relationships emerge from scientific discourses that purport to describe the body's response to the IUD. They are not, however, neutral and objective descriptions of the body. The representations of the IUD-ed bodies are embedded in and validated by the socio-political contexts that informed the scientific endeavor to elicit the effect of the device on the body. Body/technology relationships are products of scientific discourses and social imaginations, which form nodes of power in the struggles to define who should take control of which persons' fertility and how.

IUD-ed bodies have often been imagined within the context of population control, which have invoked images of women in developing countries who are "unmotivated" to

engage in contraception as well as those who became victims of aggressive population control policies and coercive IUD insertions. The initial scientific efforts concerned with the IUD indeed were deeply embedded in the population control movement, in which the IUD emerged as the ideal technical "fix" to the overpopulation problem. The initial assumption that scientists brought to IUD research was that the device was going to accomplish perfect surveillance over the reproductive bodies of developing countries. Motivated by the mission to end the "population war," scientists searched for the perfect *weapon* designed to end undesirable births. The IUD was anticipated to become the most effective contraceptive method for a selected population, which had a strong connotation of racial minorities, women of lower socio-economic status, and women in developing countries. When discontinuation of the device persisted due to problems including spontaneous expulsion and pain and bleeding, scientists imagined the IUD and the body to be engaging in an antagonistic relationship, or that the uterus was resisting the device. When it became apparent that design changes could not produce a device that universally regulated all uteri, scientists settled with the idea that only some uteri can accommodate the device. The accommodating uteri became the ideal IUD containers, and were used to produce the statistics to promote the device. Population control advocates also had to accept the fact that not all women will or can use the IUD and be satisfied with achieving a low pregnancy rate among women who "accepted" the device and cooperated with their political agenda. Scientists had to compromise with the fact that the device was not going to be 100% effective or become a panacea for population control; only a little over 50% of users retained the device after six years. Nevertheless, by the end of 1960s,

scientists negotiated an IUD/body relationship that is acceptable in terms of the device's effectiveness in regulating undesirable births in developing countries.

A safe body/technology relationship was the next one to be negotiated through material and discursive rearrangements. It was not until white Americans were injured that the safety of the device came under the spotlight. Deaths among users of the Dalkon Shield IUD, which was marketed aggressively to women of all age, race, and class in the United States during the early 1970s, spurred scientific investigation on the risk associated with IUD use. A series of studies located the blame for IUD related injuries on the Dalkon Shield, which they isolated as physically different from other IUDs and particularly dangerous to women. The blame was also placed on the users' and their partners' sexual activities that increased the risk of sexually transmitted infections. Scientific studies concluded that the Copper T, which was physically different from the Dalkon Shield, was safe when used by women whose medical histories and sexual activities did not contribute to increased risk of pelvic inflammatory diseases (PID). At the same time, these studies constructed the safe bodies of the Copper T users, which belonged to older married women with children. These claims virtually saved the Copper T, a new improved device, which was being distributed in developing countries.

In the United States, the popularity of IUDs plunged after the Dalkon Shield crisis, owing partly to the reluctance of physicians and pharmaceutical companies to provide the contraceptive method. The IUD, nevertheless, is regaining acceptance in the American contraceptive market today. The practice of informed consent alleviated physicians' fear of litigation. In addition, pharmaceutical companies are marketing the IUDs to "mothers," and by implication discourage the use of the device by women who

do not fall into such category. "Mothers" are imagined to be in less risk of acquiring sexually transmitted infections (STI) since they are assumed to be in a monogamous relationship and to be less affected by infertility, should such a case arise, because they already have a child. The safe IUD-ed bodies, which are characterized as those of mothers, were negotiated through scientific claims that attributed IUD risks to the Dalkon Shield and to the sexual promiscuity of the users and their partners. The construction also reflects the American social conditions that require physicians to feel "safe" about inserting IUDs into their patients.

Side-effects that led to discontinuation of the method were one of the largest setbacks for the population control advocates who aspired to accomplish technological control over excess fertility. The genealogy of the hormone-releasing IUDs shows how IUD developers appropriated the meaning of *bleeding* based on the opportunities they saw in the application of the method. It also illustrates how women in developing countries are implicated as users who need to be persuaded to retain the device whereas women in industrialized countries are implicated as *consumers* of technology that welcome the method as choice. Beginning in the early 1970s, scientists proposed that the effect of the hormone that reduces the amount of bleeding may be a favorable feature for users in developing countries, for whom excess bleeding was a problem that led to the discontinuation of the device. It was also argued that since women in developing countries suffered from anemia more often then women in industrialized countries, hormone-releasing IUDs would be a valuable method to decrease the amount of blood lost during menstruation. However, as it became clear that many women in developing countries were not ready to accept methods that change their menstrual patterns or cause

amenorrhea (absence of menstrual period), the idea of applying the hormone-releasing IUDs to them disappeared. The decrease of menstrual blood and amenorrhea, which is caused in 20 percent of its users, became another unfavorable side-effect for developing country users. Yet the largest reason the hormone-releasing IUDs are not actively offered in developing countries may have to do with cost. Users that are targeted for the new hormone-releasing IUD are women in industrialized countries who can afford the $500 insertion fee and who supposedly welcome the technological intervention to relieve them from the nuisance associated with menstruation. The device is also promoted as a therapeutic device that can be used to treat menorrhagia (excess menstrual bleeding) and help get through menopause. Women in industrialized countries who are "busy" with career and children are imagined as welcoming the medical regulation of menstrual bleeding and having control over their reproductive bodies. The body/technology relationships constructed through the medical discourses of the hormone-releasing IUDs are indicative of the distinctions that are made by developers between women of different race, class, and nationality. The discourse thus shifted from controlling the fertile bodies of the "mass" population in developing countries to regulating the menstruating bodies of busy mothers in Western countries as developers found the latter group more a lucrative consumer base.

The mechanism of action of the IUD is the most politically contested body/technology relationship. IUD supporters have actively tried to distance the method from abortion, first by relying on the redefinition of "conception" as the point in time when the fertilized egg implants on the uterine wall and then arguing that IUDs prevent fertilization rather than the implantation of the fertilized egg. Antiabortionists argue that

there are not enough evidence to exclude the possibility of fertilization, and therefore, IUDs should be advertised as a device that causes micro-abortions of fertilized eggs. Again the body/technology relationship is constructed and reconstructed in a struggle to define appropriate means of fertility control. Representations of IUD-ed bodies in scientific discourses are never simply a description of the body's reaction to the device, but socially and politically motivated imaginations.

Scientific discourse of contraceptive technologies is merely one layer of the discourses that define how the regulation of the fertile bodies should occur and for whom. Various social discourses exert control over reproductive bodies by producing representations of bodies that are purportedly favorably controlled in a certain way by certain technologies. Women of different race, class, and nationality are implicated differently as users in the intersecting discourses of population control, reproductive rights, and antiabortion movements. Women in developing countries are typically represented by population control advocates as reproducing excessively and in need of long-term methods because they are either unable to have access to continuous supplies of oral contraceptives and condoms or cannot be trusted to use them consistently or correctly. The IUD-ed bodies in the population control discourse are those that cannot be disciplined behaviorally to conform to the regimen required by some contraceptives and, therefore, have to rely on a long-term provider-controlled contraceptive technology to control their fertility. Underprivileged American women have been implicated in a similar manner by discourses of fertility control: that they are good candidates for long-term methods because their reproduction is undesirable. Well-to-do American women, who are already well versed into the medical regimen and accepting of pharmacological

regulation of their bodies, have typically been portrayed as those who can reap the benefits of the IUD as an alternative to hormonal methods when for some reason the pills are not acceptable for them. Of course, for a couple of decades after the Dalkon Shield injured many of them, the IUD was considered an unfavorable method for American women, while the method continued to be distributed overseas. Recently, however, the market of contraceptive technologies has diversified with the introduction of hormonal patches and vaginal rings, making it more amenable to opening up room for IUDs as a choice, especially for older women, a niche not covered by hormonal products.

There certainly is a double standard in the ways IUD developers have constructed the device on the one hand as a population control tool and on the other hand as a choice for individual women. Those who promote the device build their discourses so that the method would be acceptable to a wide range of users. IUD embodies contested meanings in terms of the question "who does the technology serve?" My examination of the discourses around IUDs emphasizes how the interests of conflicting and coalescing reproductive politics play out in the production of the device. In order to balance out my heavy focus on the *upstream* production, the last chapter presented examples of user appropriation of the device. Women in developing countries are not always passive victims of the technology or the discourses and practices that enlist them into certain reproductive norms. Women have resisted the technology as well as mobilized it to meet their reproductive needs within their local social and cultural contexts. The relationship between technology and race, class, and nationality evades simplistic conclusions. The technology also evades simplistic judgment about whether it is good or evil. The

meaning of the IUD is negotiated within the web of interests that are both global and local.

The IUD can be understood as a "disciplinary technology" that socializes and disciplines reproductive behavior in multiple ways, but also offer "means of liberation" and "strategies for resistance against related disciplines of gender, race, class, and global position" (Clarke 1998: 205). Sawicki (1991) suggests using the concept of disciplinary power (a la Michel Foucault) to discuss the power relationships mediated through new reproductive technologies such as in vitro fertilization. Disciplinary power represents power that is not possessed by an individual or groups, but power and resistance that are mobilized through individuals and groups occupying various shifting positions in social networks that are held together by intersecting practices and discourses (Foucault 1975). Sawicki discounts what she regards as the conventional feminist critique of power relationships, which deems reproductive technologies as a manifestation of male domination over childbirth practices through high-tech medicalization. She writes:

> Disciplinary technologies are not primarily repressive mechanisms. In other words, they do not operate primarily through violence against or seizure of women's bodies or bodily processes, but rather by producing new objects and subjects of knowledge, by inciting and channeling desires, generating and focusing individual and group energies, and establishing bodily norms and techniques for observing, monitoring, and controlling bodily movements, processes, and capacities. Disciplinary technologies control the body through techniques that simultaneously render it more useful, more powerful and more docile (Sawicki 1991: 83).

I have argued that the IUD is a discursive and material object that embodies the politics of fertility control. The discourses surrounding the use of the object channels its use, generates its meaning, usefulness, and users. Furthermore, the IUD and the discourse surrounding the device socializes reproductive behaviors in ways that require women to rely on medical services for fertility control, to take part in the practice of limiting or

spacing births, to accept technological regulation of the body, and to live with side-effects. At the same time, women around the globe utilize or reject the technology to subvert gender roles, resist state intervention, or simply to fulfill their own reproductive goals. The IUD, although its design makes it amenable to use intended to impose fertility regulation on unwilling bodies, is not inherently violent. Users, though almost never the most powerful actors in the power matrix, may find windows of opportunity to resist or appropriate control to their needs. The web of relations composed by multiple parties with varying and contradicting interests in reproductive control provides the setting in which IUDs are produced and mobilized.

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