CHAPTER 1

Consuming Technologies

Laura, a thirty-five-year-old woman, and her husband, Joe, had undergone infertility treatment for several years.[1] Infertility problems had been identified in both. In vitro fertilization (IVF) was the last resort.[2] As Laura explained:

We did the IVF. We went through the process. I responded quickly, so it went quicker than they expected. We went in and we were real up. About as up as you could be. It was what he [Joe] had to look forward to. And we were feeling real good about it. They got eighteen eggs and nothing fertilized. So we sat here afterwards waiting for the calls. Went back the next day and tried to inseminate them again—still nothing. So that was it. That chance was the end of the road.

Amazingly enough, we made the best of it. We sat here at the table realizing it wasn't going to work. We shed some tears. He [Joe] sat there [pointing to chair] and there was a PC set up there, and he started writing our letter for adoption. I couldn't help him. I couldn't find anything that I was good at right then. I said, "You know, when people write those letters, they talk about their hobbies. My hobby is infertility."

Laura's story captures the emotional highs and lows people experience when IVF is unsuccessful. Her hopes and those of her husband, so high initially, crashed when the cycle failed. Laura is not only struggling with lost hope; she is also dealing with infertility's assault on her identity.

Being unable to think of anything good about herself for an adoption letter or to think of anything she does with her spare time besides deal with infertility conveys not just the depth of her despair but also the profound impact on her sense of self of the loss of any hope for a biological child. In the midst of addressing these difficult issues of personal identity, Laura is being forced to confront another: her position as a consumer-patient in the rapidly developing industry of advanced reproductive technology.

When I started to study infertility almost twenty years ago, there was little public recognition of its effect on people's lives. Although scientists had been researching human fertility in the lab for a number of years, little of this work had found its way into clinical practice.[3] In vitro fertilization had been introduced just a few years earlier. Reproductive endocrinology, the subspecialty of medicine that deals with fertility, was in its infancy, and treatments for infertility were minimal. Moreover, almost no media attention was paid to infertility or any related phenomenon such as adoption. It was this dearth of attention that led me to study the topic: first, because I believed people needed to be educated about infertility; second, because I sensed that major changes in social attitudes toward infertility were just around the corner; and third, because infertility is entwined with many cultural phenomena that intrigue anthropologists such as myself, and there is no better time to study those phenomena than in a period of change. I did not, however, anticipate just how profound those changes would be or how deeply new reproductive technologies would affect the ways in which people think about fertility.

Because I am an anthropologist, I look at developments in reproductive technology through the lens of culture. Culture is pervasive in human actions; it is embedded in everything human.[4] In this book I explore how reproductive technologies embody cultural phenomena and become entwined with people's lives.[5] I examine technologies designed to bring about conception from the perspective of the women and men who use them. Drawing on two studies of infertility with over three hundred women and men in the United States who were interviewed several times over one or two years, I tell their stories of the effect of reproductive technologies on their lives.

I am concerned with understanding how women and men navigate their way through a complex life passage in which they must come to grips with deeply embedded cultural expectations about biological reproduction. I examine how people seek solutions while resisting the

heavy moral force of such expectations. I explore how women and men negotiate gender and gender relations, how they tease apart and analyze the various elements of the cultural ideal of biological parenthood, and how they assess the biomedical system in which they ambivalently participate. I trace how that experience becomes increasingly politicized as they confront the powerful social, cultural, and economic forces that shape this industry, and how they act to influence the process in which they are engaged.

CHANGING NOTIONS OF NATURE AND CULTURE

Advances in reproductive technologies are reshaping the ways in which women and men—but especially women—experience their bodies and their lives. As that technology expands, cultural notions of what constitutes the natural body are changing.[6] Since the late twentieth century, the process of redefining nature has accelerated along with the pace of technological development; yet the changes have revealed a lack of synchrony between technological advance and people's experiences and understanding of their bodies. The female body, in particular, has been reconceived as a site of technological advance. In consequence the body itself becomes a site of disruption,[7] as Laura learned when she adjusted first to the idea of using in vitro fertilization at all, then to the retrieval of eighteen eggs from within her body, and finally to the realization that the process had not worked.

Practicality—the need for results—is the primary force that propels women and men deeper and deeper into treatment, but this attitude is always tinged with regret that conception could not have occurred without any intervention. Indeed, one of the main themes they express is the loss of what they consider to be natural. This pervasive sense of sadness was countered by the need, as they saw it, to remedy their childlessness.[8]

No one in this study felt that the reproductive technologies they turned to were in any way natural. Women and men in this study viewed the use of reproductive technologies as a necessary but unpleasant step toward having a biological family.[9] As they remind us repeatedly, what they considered natural was to conceive in private, without the knowledge, participation, or help of any third party or any kind of technology. While they sometimes reported going through parts of the medical treatment process automatically, that was often because they felt worn down by treatment. Any excitement they expressed about the process was related to the hoped-for outcome, a child. Sometimes immersion in the

technological details offered an escape from facing the bigger issues, but it did not lead them to regard any part of the process as pleasant. Yet when a pregnancy did occur because of technological intervention, the parents often made a concerted effort to treat the process *as if* it were natural.[10] This tendency is part of the larger phenomenon of modernity and an outgrowth of industrialization. Anthony Giddens notes that although in most parts of the globe people now live in created environments subject to human control,[11] in everyday life people continue to view their bodies as natural, resisting the idea that the body reflects cultural notions of bodiliness, even when that body has been modified by implants and other technological changes.[12]

This shift from nature to culture is accentuated by the presence of new reproductive technologies. While going through infertility treatment with his wife, Charlie predicted: "Twenty years from now people will automatically bank their sperm and their eggs in their early twenties, then go on with their lives until they are much older, when they are ready to have kids. The issue [infertility] you are studying now will disappear. We will think of biological reproduction differently. It will be shaped by advances in technology."

This portrait of the future dissolves the split between nature and culture in daily life. If Charlie's prediction comes true, not only is the current disruption resulting from infertility a temporary phenomenon, but technology's role in reproduction will become even more prominent than it is now. We are in the midst of change: these technologies can be seen as fundamentally transformative.[13]

By showing the complexity of the task these women and men are engaged in, I aim to break down stereotypes of women in blind pursuit of medical technology. What, precisely, is at stake for them? The list is long, but at the top are having a family, charting the direction of their lives, and preserving their gender identity. The challenges are profound: creating a family while making the right decisions—whether to pursue medical treatment rather than adoption, for example—maintaining a solid relationship with one's partner, being assertive and autonomous in dealings with the health care system, weathering family friction, and keeping careers afloat. Their situations can have diverse repercussions on their lives.

Exploring and managing changes in oneself is part of modern social activity.[14] The discovery of infertility can be one trigger of this process. In writing this book, I want to make what I learned in my study available to people undergoing or contemplating reproductive technologies. I be-

lieve knowledge is power, and the more we know about something, the better equipped we are to grapple with it. I am not simply concerned, however, with reporting people's responses to medical treatment; I want to examine the social and cultural forces that have created the current situation and that continue to nurture the growth of technology. Exploring these processes from the consumer's perspective can illuminate those cultural dynamics for the benefit of consumers, social scientists, and practitioners of all sorts.

Social scientists and practitioners are currently very interested in technological innovation and its ramifications for social life, and my goal is to speak to them as well as to consumers because reproductive technologies and their use have great potential to inform our understanding of cultural processes in modern life. To engage the widest possible audience, I pause in the text periodically to define my terms. I also make ample use of notes for further technical and analytic discussion.

THE GROWTH OF AN INDUSTRY

In the twenty-some years since Louise Brown, the first "test tube" baby, was born in England, in vitro fertilization and other assisted reproductive technologies have moved from a highly experimental status to options that are mentioned routinely to patients during the first office visit for infertility treatment. Initially developed specifically to treat women with damaged fallopian tubes, IVF and related technologies are now used to treat all types of infertility, including male infertility and that catchall diagnosis, "unexplained infertility." As the range of medical options has changed, consumers' responses to them have changed also. Louise Brown was six years old when we began studying infertility in 1984. Her birth was a media event with few apparent reverberations among people living with infertility; they saw little or no connection between that birth and their own lives.

The studies I have conducted with Robert Nachtigall have explored, specifically, how the discovery of infertility disrupts cultural expectations about the structure of life and how men and women differ in their responses to unwanted childlessness. After conducting a pilot study with 36 couples, we carried out a second, larger study with 134 couples and 9 women without their partners who were either undergoing medical treatment at the time of the first interview or had completed medical treatment during the preceding three years.[15]

Only one of the twenty-eight couples interviewed in 1984, the first

year of the research, considered IVF an option. Of the few IVF programs in the United States at that time, none was in our geographic area. The "take-home baby" rate at the most successful clinic in the United States was approximately 15 percent, and the average cost of a single cycle of IVF was approximately $5,000, which was a lot of money at the time and was unlikely to be offset by insurance. Moreover, such programs screened patients carefully to protect their success rates: they targeted women who had specific tubal problems, and they seldom accepted women over the age of thirty-five. Most couples in the study viewed the cost as prohibitive, the treatment as experimental, and the success rates as insufficient to justify the cost. Moreover, they believed that IVF was an extreme version of a medical process that was already emotionally difficult. If they did not conceive through more traditional means, the majority expected to pursue adoption, which they regarded as less costly and more likely to succeed.

The one couple who did apply to an IVF program, after fourteen years of medical treatment, was turned down. They were considered by the clinic to have a low probability of success: each partner had an infertility factor, they were close to the age limit of thirty-five, and the female partner failed the clinic's psychological tests, ostensibly because she was too emotional about her infertility.

By 1987, when I interviewed an additional eight couples and seven women, several IVF programs had been initiated locally, and others had sprung up around the United States. How did this increase in IVF programs affect people's responses to infertility treatment and their attitudes about IVF? Four of these couples were receptive to IVF. Two had already undergone IVF: one had conceived after three cycles of treatment, while the other had undergone numerous cycles without success. Two other couples were pursuing IVF: one couple was turned down because of the financial constraints of their health maintenance organization (HMO), and the other planned to undergo the treatment. The remaining couples dismissed IVF treatment for the same reasons as couples did in 1984, emphasizing that they could adopt a child for the cost of a single IVF cycle and that success rates in IVF programs had not significantly improved.

When our new study began in 1991, dramatic changes were apparent. There were now seven IVF clinics in the area, the majority of which were affiliated with local hospitals or medical centers. Criteria for entry into IVF programs had been relaxed greatly. While some programs had an age limit of forty, others had none; all programs treated various types

of infertility. In some programs the only criterion for participation was the ability to pay.[16] These changes have persisted; the ability to pay remains the primary arbiter of whether people consider IVF feasible.

DRIVING FORCES IN CONSUMER CULTURE

Regardless of the outcome, new reproductive technologies may take a toll on people's lives because people invest them with so much power. But it is only through human actions that such technologies are engaged. To understand their effects on the lives of people who use them and on society generally, we need to understand technologies as expedients of human actions, tools in the interplay of culture. These technologies may appear to take on power over people's lives, but that is only because society infuses them with power. Not only is technology an expression of culture; technology affords a prime example of consumer culture—how people handle the relationship between the social order and the intimate spheres of their lives.[17]

Reproductive technologies have entered the mainstream of medical treatment. Both the public and medical practitioners identify them as socially and culturally desirable, reflecting the way that society's priorities are reproduced in the institution of biomedicine and in business practices. This is consumer culture at work. According to Don Slater, understanding consumer culture entails more than studying individual choice and consciousness, wants and desires; it means examining these qualities in the context of social relations, structures, institutions, and systems. If we want to understand why new reproductive technologies have taken hold, we must look at the social conditions under which personal and social wants and the organization of social resources are negotiated.[18]

Consumption can be seen as meaningful social practice. Consumer culture reveals individuals' power of disposal over their lives and over the resources they identify as necessary.[19] For the consumer of new reproductive technologies, for example, exercising discretion over their use is an expression of power in an apparently intractable situation. Consumption is replete with cultural meanings, and people use technologies in accordance with those meanings. In doing so, people experience the social order as a compelling moral order and reproduce it in everyday life.[20] For example, health promotion in the United States can be seen as an instance of middle-class morality, in which people feel responsible

for eating right, exercising, and avoiding activities that are viewed as unhealthy, such as smoking.[21]

Examining people's experiences with new reproductive technologies can tell us much about how the consumption of technology evolves as a cultural process: that is, how it emanates from social forces. This process is occurring at a time when technological advances are appearing in quick succession, when cultural meanings are in flux, when gender is in a state of continuous negotiation, and when technology itself can be seen as culture.

Consumer culture revolves around specific objects of consumption that are meaningful because they reproduce social identities.[22] For Laura, IVF held out the hope of motherhood, an identity for which she longed. Technologies derive from and are created by cultural priorities. Parenthood is one such priority. It is easy to see why new reproductive technologies have caught on so quickly: they hold the potential to allow people to reproduce themselves by having a child. Consumer culture thus connects questions about how we want to or should live with questions of entitlement, addressing the wants and needs of individuals. Consumers have played a central role in promoting and sustaining the new reproductive technologies. As we will see, consumer experiences with these technologies are the key to understanding the cultural dynamics at work.

The growth of technology is closely tied to a society's central tenets. The United States can be characterized by its cultural diversity, but it can also be characterized by cultural ideologies originating from its early roots as a colony of dissidents and free thinkers who immigrated from Great Britain. Subsequently, Enlightenment ideals such as freedom and rationality, originating in the philosophy of rational determinism,[23] were institutionalized in a distinctively American form in the U.S. Constitution and became the basis for cultural values and ideologies that persist today.[24] They include progress, productivity, individualism, control over the environment, perseverance, and an orientation toward the future.[25] Such ideals continue to dominate U.S. society despite its cultural diversity, in part because they reflect rights and responsibilities as they devolve on the individual and in part because they are embedded in social institutions.[26]

The ethos of radical individualism is essential to technological growth in the United States and can even be viewed as an ideology, one particularly prominent among the middle class.[27] Not everyone subscribes to

this cultural ideology, which is sometimes distinctly at odds with the beliefs of people from other cultural backgrounds and social classes. Indeed, people may often feel at odds with the moral responsibilities that adhere to particular ideologies and may rebel against the social constraints that such ideologies impose on them. Nevertheless, such ideologies shape how people think about their lives and the problems they face, whether or not the individuals are conscious of their influence.[28] For example, when patients and physicians decide to undertake a last-ditch effort for a cure, they usually proceed for reasons related to the importance of maintaining control over the environment and overcoming obstacles through persistence.[29] These beliefs underpin the drive to create and promote ever more effective technologies. Social institutions, such as biomedicine, in turn reflect these cultural expectations.

Progress is one of the cultural ideologies of the United States. Indeed, the dominant modernist ideology of progress is spreading worldwide. Long associated with American concepts of expansion in realms such as industrialization and the "taming" of the West, notions of progress also inform the field of medicine, which can be viewed as one of the primary frontiers in contemporary American society. Biomedicine is replete with metaphors of progress. For example, television newscasters frequently state, "Researchers report that we are making progress in winning the fight against [disease]," and then recount the latest development in a specific area of medicine. This emphasis is nowhere more apparent than in new reproductive technologies. Despite recent postmodern challenges, the belief in linear progress, absolute truths, and rational planning of ideal social orders under standardized conditions of knowledge and production persisted during much of the twentieth century.[30] Such notions continue to underpin both individual ideas and institutional ideologies about how the world works, and those ideas infuse people's actions with meaning.

Media coverage of high-technology innovations facilitates public receptivity and the process of commodification: for example, the public has gradually shifted from viewing assisted reproductive technologies as esoteric and overpriced to considering them commonplace. Women and men often reported that their ideas about reproductive technologies altered after viewing television news reports, talk shows, and informational programs in which new developments were portrayed. At the same time, people remain wary of technology taking over their lives.[31] Such ambivalence was expressed in a recent statement on television

sponsored by the Media Foundation which used captions stating, "The product is you," and "Cast off the chains of market-structured consciousness." This book shows such sentiments mirrored in people's repeated expressions of ambivalence about new reproductive technologies. Ashley conveys her ambivalence about doing IVF:

You sort of feel that you have gotten every bad break that you can get. They gave me a 20 percent chance in one cycle, and I am a pessimist anyway so I see it as an 80 percent chance of failure, and I would be totally blown away if it worked. But I feel like I need to go through the motions, partially because I think I would look back on it and always wonder, and feel like I hadn't tried everything. But I don't know if I can stand it—I don't know how awful the shots and all that stuff is going to be. But if it is tolerable, I can see maybe doing another cycle while we are waiting around for the adoption stuff. But the money—we are not covered by insurance, and our savings are just going. And I want to have enough money to do adoption. I don't want to totally wipe us out. I think we are going to see how bad it is.

In a medical field that is unregulated, as assisted reproduction largely has been, technology may drive treatment, especially when reinforced by strong cultural priorities. When a specific medical technology is no longer viewed by medicine as experimental, that technological innovation may be increasingly accepted by the public and may eventually be viewed as commonplace.[32] As a technology becomes accepted as routine, the cost may provoke debate about the allocation of resources.

CONTROLLING CONSUMPTION

Who uses these new technologies? Consumer culture raises questions about whether resources are allocated equitably or whether social systems (including, for example, market forces, private corporations, media and cultural institutions, modern "knowledge," science, and expertise) have the power to dictate people's needs or to reduce some people's access to resources.[33]

Practitioners have flocked to new reproductive technologies aimed at the middle and upper classes. The actual cost of new reproductive technologies to the consumer is determined by several factors: the expense of operating a program and its laboratory, the labor involved in the procedures themselves, and the availability, or lack, of insurance to underwrite the cost.[34] The median cost of a single cycle of IVF is now

approximately $10,000; the incorporation of donor egg technology adds $5,000 or more to the cost of a cycle. Costs have escalated as complex technical variations have proliferated. New reproductive technologies are now estimated to be a $350-million-a year business, while infertility care overall has been estimated at $2 billion a year.[35] The greatest profit lies in performing new reproductive technologies.

In contrast to the profits to be made, consumers who contemplate these technologies feel hard-pressed to find the money. Claire and Morrie examine what it would mean to them financially if they undertook IVF:

CLAIRE: *I think it's the way to go. But if we have any problems or if it doesn't work the first time, then we have to spend more money.*

MORRIE: *We don't have the money for the first time.*

CLAIRE: *We have a credit card [laughter].*

MORRIE: *It'll take us twenty years to pay off. We don't even have savings for a retirement fund, let alone for one time.*

CLAIRE: *My doctor thinks I'm a real good candidate for it. I don't feel the same way about the money as Morrie does. We could borrow it from a credit card, and the interest rates have gone down, so it's not as bad as it was.*

MORRIE: *Three tries at $10,000 apiece—that would be our retirement.*

CLAIRE: *I think $30,000 wouldn't be feasible. There would be no way that we could afford to do that.*

MORRIE: *I'm not complaining about it, but . . .*

CLAIRE: *I know you're not, but the way that I feel about what I want in my life is that I've lived so long without having much materially. It's just been a struggle to have what we do have, and I don't ever see it changing very much, so making payments on another $15,000 doesn't faze me because I don't ever see that we're going to get out of the rut that we're in financially. So I want to live my life the way I want to live it, regardless of how much money I have. The value I place on what I want in my life is my family. I've always wanted children. That's what means the most to me because it's a lifelong investment into somebody that you have close to you for your whole life.*

Like Claire and Morrie, everyone in this book who contemplated IVF was forced to weigh the importance of children in their lives against the financial costs of attempting to conceive with reproductive technologies. But it is not simply a question of money versus children. Many other factors are involved, and the decisions couples face are complex.

The cost of such technologies, no matter how high, may appear increasingly justifiable as the success rate improves. The economic cost is culturally refigured, for example, if people want a biological child at any price. Indeed, the cost—which is almost prohibitive for most middle-class families—may become part of the allure. Being *almost* out of reach reinforces the idea that because these technologies are so esoteric, they may work where nothing else has.[36]

As specific technological advances become more widespread, they create a competitive medical marketplace. For example, when local medical practices began to offer new reproductive technologies in the early 1990s, they competed with each other for patients, advertising lower prices, nonmedical support services, and other enticements. In this new marketplace, offers of package deals, discount plans, and money-back guarantees were calculated to make treatment seem affordable. The recent development of investor-owned, expansion-oriented chains of IVF programs raises the question of whether patients are being pushed toward certain highly profitable reproductive technologies rather than to alternatives that are less risky, less complex, and less expensive.[37] Concerns have been raised by the American Society for Reproductive Medicine about the exploitation of infertility patients.[38]

Cataloguing the players who generate, maintain, and benefit from technological proliferation gives us another way to look at the relationship of consumption, control, and medical technology. Those with vested interests in new medical technologies are likely to be the same whether we are talking about new reproductive technologies, bone marrow transplants, or new treatments for HIV. The players represent, in addition to patient-consumers, the powerful institutional interests that vie for dominance. Consumers of new reproductive technologies represent only one set of interests competing among many.[39] The others include the companies who market their drugs and equipment to physicians and consumers, the entrepreneurs who offer stock in medical corporations, the sperm banks that store donor gametes, the universities and medical centers that conduct research and training (as well as the webs of affiliations that provide patient referrals), the professional medical associations that provide continuing education and self-policing of

reproductive technologies, the insurance companies that mandate policies about payment, the government that promulgates social and research policies, and the legislators and advocates who develop relevant legislation.

This long list of competing interests demonstrates how much power and money are at stake.[40] The new technologies represent big business. As we can see from this list of vested interests, biomedicine, the realm people usually think of when they think of new reproductive technologies, is one realm among many. With respect to the new reproductive technologies, biomedicine is not necessarily the most powerful institution, although it continues to be the *symbolic* realm of action. Indeed, corporate interests appear to play an increasingly powerful role. New reproductive technologies are thus of special interest as an example of the amalgamation of biomedical and business interests in a rapidly growing field. As we will see, consumers are wary of this kind of amalgamation.

THE EMERGENCE OF NEW REPRODUCTIVE TECHNOLOGIES AS THE GOLD STANDARD

The introduction and development of assisted reproductive technologies has revolutionized the ways in which physicians think about the treatment of infertility. New reproductive technologies have become "the gold standard," to use a phrase often repeated by physicians in this study. Definitive diagnoses of specific infertility problems are often possible only with new reproductive technologies. But, ironically, the proliferation of assisted reproductive technologies has led to a paradigm shift in which infertility care is driven not by the diagnosis but by the treatment. The emphasis has shifted from diagnosing and correcting abnormal physiology to achieving a pregnancy in the fastest and most direct manner possible, regardless of the cost or invasiveness. This approach aggressively augments the natural reproductive cycle, or bypasses it altogether, and aims for results regardless of the underlying infertility diagnosis.

Women and men balk at this approach and are skeptical of it. After attending an informational evening program in which several infertility specialists discussed the specifics of IVF, Milt complained:

When you clear away all of the smoke and all of the rhetoric, they don't have any answers. There are no answers out there. And one of

the things that I thought was most poignant and that I carry away in my memory, and that I still state to myself when we talk about these things, is that in vitro is the gold standard. That's the benchmark against what everything else is measured against, and that's because they can watch it through a microscope and they know exactly what's going on every minute.

Karen interjected:

Some of the things that they said were very enlightening. But what it seemed to be was that all they were talking about is tests. "We can do this test, we can do that test." "This test tells us this, this test tells us that." But the answer of what you do next, every time, is in vitro. The tests just gave a little more information about performing in vitro. But they didn't have any other suggestions as to what to do as a therapy. And I actually asked them. I asked a question which was completely ignored. I asked, "Is there anything else besides in vitro?" When they heard my question, they all laughed, and nobody answered it. My question was totally serious.

The specialized nature of modern expertise contributes to the runaway character of technology.[41] Although in the past infertility treatment rarely lasted longer than a few years or cost more than a few thousand dollars, it now lasts until the couple's emotional and financial resources are exhausted. Although it holds out the promise of shorter treatments, the sometimes bewildering array of high-technology options may extend the time that a couple remains in treatment.[42]

Paradoxically, too, despite this aggressive approach, some of the diagnostic techniques utilized in the early stages of treatment are inconclusive, and empirical therapy—all-purpose treatment regimens that do not depend on a specific diagnosis—is the rule of thumb of most early treatment. Patients often lose precious time—sometimes years—on empirical therapies, the effectiveness of which cannot easily be gauged for a specific patient.[43] Because a woman's age is a significant determinant of the effectiveness of treatment, such delays undermine the expensive and sophisticated efforts made to achieve a pregnancy. Why?

Infertility specialists sometimes do not offer new reproductive technologies to patients immediately because of the great expense. If cost were not an issue, physicians would undoubtedly suggest that patients turn to the new technologies sooner, as they do in Great Britain (where the government covers the cost), because from a medical perspective they

yield better results in a shorter time. But there are reasons besides cost why people do not pursue new reproductive technologies sooner. First, they are more invasive than other types of treatment, entailing multiple medical procedures and long courses of hormones that control women's reproductive cycles. Women experience more side effects and have more concerns about medical risks. Second, socialization to being an infertility patient takes time. Except for some women in their forties who begin treatment with donor eggs right away, people are seldom ready to accept aggressive new reproductive technologies early in treatment, preferring to take a less invasive approach at first and hope it will be effective.

Ashley and Scott have been trying to conceive for four years. They have gradually moved from the most basic treatments to being on the verge of IVF. Ashley talks about what it has been like:

For me, it has been just total frustration because we are not covered by insurance, and it is kind of like if somebody wanted to design a program to drive me literally insane, this is it. We did a lot of small diagnostic tests, then I was put on drugs, then I had surgery for fibroids, then we were supposed to do six cycles with more drugs, but I didn't respond to it. So they gave me more drugs, and then I got hyperstimulated and had to stop the drugs completely. So then I was having to do these urine tests at work and rush them to the doctor's office in rush hour traffic. You know, you have to do everything exactly, and under rush and stress, and I would do all that, and then they would say, "Sorry, we can't try this month, but maybe next month." And next month and next month. So the whole thing has been so frustrating, plus expensive because they want to monitor you real closely. They gave me ultrasound after ultrasound.

So the shit hit the fan about a month ago when I just felt like, "This is ridiculous," and we had a powwow with our doctor. Now, given my age [thirty-nine], he said, "If you are going to do IVF, you better just schedule it." But we don't know if we want to get into the whole rat race again. The most frustrating thing is the time wasted, the expense, not being able to try because of the condition of my ovaries, and sort of being pushed into this really extreme solution which we don't know that we want to do. So the whole thing has been really frustrating, and it has totally disgusted me with the medical world.

The physician's role in infertility treatment has changed. Whereas twenty years ago basic infertility testing and early treatment typically

took place in the gynecologist's office, today infertility specialists have become treatment managers because of the proliferation of specialized techniques and equipment. Reproductive endocrinologists (subspecialists in infertility treatment) increasingly employ Ph.D.-trained laboratory specialists, such as andrologists and embryologists, and the techniques employed include the micromanipulation of sperm and eggs and preimplantation genetic diagnosis.[44] Expert systems such as this are designed to be responsive to, and interact with, consumption. That is, they are prepared to address in a timely manner a host of medical concerns that may arise. The cost of new reproductive technologies is therefore closely related to the constant monitoring of these systems by laboratory personnel. Although a variety of clinical strategies are employed to minimize the utilization of services on weekends, IVF centers are obligated to meet the needs of patients at specific points in the reproductive cycle. This requires staffing by physicians, nurses, and office and laboratory personnel seven days a week. Because laboratory procedures are often critically time-sensitive, staffing must allow for twenty-four hour coverage when necessary.

The process of technological development in medicine culminates with the naturalization of a technology and its acceptance by the public.[45] Today babies such as Louise Brown are seen as a normal part of life. People have adjusted to the idea that conception may take place in the lab, not in the womb. In twenty years new reproductive technologies have not only come full circle, they have come to be viewed around the world as simply another means of conception.

WHO IS LEFT OUT?

Technologies may create or perpetuate social inequalities. New medical technologies are generally expensive, and in the United States access to such treatments is often limited to patients who can pay. The small number of people in this study who had low incomes had almost no medical options, and they dropped out of medical treatment in the early stages. Couples sometimes decided, after some brief diagnostic testing, that they could not afford to proceed with medical treatment, and began exploring ways of adopting a child that would not be costly. Jackie, who could not afford any medical care whatsoever, concentrated on making her body as healthy as possible through diet, exercise, and "positive thinking":

I was tested. I went to a clinic. But I was tested—the dye through the tubes and all that stuff, and I was told that I had scarring and that one of my tubes was a little crooked and that my chances of getting pregnant were pretty slim. In fact, I remember them telling me that it could get caught in there. The scarring was caused by an IUD, and PID. Constant PID.

I am kind of letting nature take its course. I would like to seek some treatment but because I am unemployed, if I am not working, I really can't. I remember this woman—she was a psychic—and I remember her telling me that when I learned to love myself, then that is when I will have a baby. So I know that I am going to have one. A baby is going to come out of this body. And it is in God's time, and it is going to be a miracle child. Because, like I said, I have one tube left, and it has some scarring in there, but I believe in miracles.

Karen, having just learned about IVF, complained:

It's $10,000 a cycle, and the chances of it working are pretty slim. We would have to save a long time to get $10,000. I'd spend $10,000 on adoption before I'd spend it on in vitro because the price tag is about the same, and that way you get a baby. And with in vitro, who knows what you get? Nothing, probably. There need to be some options for people like us who don't have money sitting in the bank.

Who uses these technologies is not simply a function of who wants to use them but also of whom society permits to use them. Access to medical treatment for infertility has emerged as a class-based phenomenon, and, to the extent that class is linked to ethnicity, works to reduce access for women and men of color.[46] Historical patterns of access and discrimination provide important clues to the power relations of a particular era. It is therefore not surprising that the United States, with its history of limited access for low-income women seeking reproductive health care and of medical techniques used punitively against specific groups of people (as with the sterilization of African American women), has taken no action to give low-income women access to new reproductive technologies.[47] This phenomenon represents another, albeit subtle, form of discrimination, making it more difficult for women and families who are poor to have children.[48]

That these technologies are more accessible to some people in society than to others reflects the underlying moral economy of the United States. By this I mean that not only is the economy political, but it is

shaped by specific social views as well. Moral economy refers to popularly shared moral assumptions underlying certain societal practices.[49] These technologies engage a moral dilemma about who shall have access to them. Implicit in the moral economy that guides the consumption of new reproductive technologies is the idea that some people are more deserving than others, and that entitlement is related to productivity, and hence to wealth—in short, to the ability to find the financial resources to pay for these technologies.

THE GLOBAL CONSUMPTION OF NEW REPRODUCTIVE TECHNOLOGIES

Although our studies were conducted in a single locale in the United States, new reproductive technologies are very much a global phenomenon, characterized everywhere by hierarchical relations and power constellations.[50] Comparing the consumption of new reproductive technologies and the policies created to regulate them in various parts of the globe can provide a view of cultural practices and power dynamics in a given society.

Practitioners in this field focus not only on international medical advances but also on the social implications of those advances. For example, when the technique of transferring a woman's donor gametes (eggs) into another woman was first developed, recipients over forty were rare. But over time the age ceiling has shifted upward. When a woman in Italy gave birth at the age of sixty-two a few years ago, the event triggered an international debate among fertility practitioners and bioethicists, one that intensified with the birth of a child to a sixty-three-year-old woman in the United States. This is but one example of the power of consumers in subverting technologies to be used in ways that were not intended.[51]

Consumers of new reproductive technologies may travel internationally to seek them out. For example, two couples in our study went home—to Israel and India—for IVF treatment because it was more affordable there. A technology may be developed in one nation but more avidly used elsewhere because it fits particularly well with the social mores of another society. For example, sperm donation is not practiced in Egypt for religious reasons. Consequently the technique of intracytoplasmic sperm injection (ICSI), whereby the sperm of a man with a low sperm count may be collected and effectively used for in vitro fertilization, has led to its widespread use in Egypt.[52] Some other countries,

such as China, have created population policies that interact with the use of reproductive technologies.[53]

New reproductive technologies also interact with other industries, such as the international adoption business. For example, the support organization Resolve provides information about both reproductive technologies and adoption, and many people in this study were contemplating both at the same time. Prospective adoptive parents are often people who have used new reproductive technologies without success or are waiting to gain access to them.[54] International adoptions can be characterized most often by the transfer of children from poor people to those who are well off and from countries that are poor to countries that are resource-rich, such as the United States and the countries of Western Europe. Under these conditions children may be commodified.

In the United States, most people who use new reproductive technologies must pay for them out of pocket, in contrast with the situation in some other countries, where socialized medicine prevails. As we will see, the financial strain this causes plays a role in the politicization of these technologies. At the same time, the use of reproductive technologies remains relatively unregulated in the United States, largely because of the prevailing ideology of autonomy.[55] In other nations these technologies are regulated, with the state therefore taking an overt role in social engineering. Many countries, for example, restrict access to these technologies to heterosexual, married couples, and some prohibit the use of certain technologies, such as those involving the use of donors.[56] Although numerous writers have examined the regulatory policies of specific countries, the absence of regulation in the United States has gone largely unremarked by Americans because they consider it a right and take it for granted.[57] It has been advantageous for some who may be viewed as socially marginal, such as single women and gay couples. Unfettered by legal restrictions on access to services, anyone who can afford the new reproductive technologies is free to use them regardless of marital status, sexual orientation, or religion, a state of affairs that has resulted in expanded opportunities to create a family as well as contributing to new understandings of what constitutes a family.[58]

ABOUT THE STUDIES

When I began my research on infertility, I wanted to include every major aspect of the social experience of medical treatment. To understand that

experience fully, however, I believed I needed to understand everything about infertility treatment. How practitioners thought about infertility and their philosophies of practice were thus important components of the research, as was the relationship between patients and physicians. I felt the inclusion of biomedical perspectives was necessary to understand the "big picture" of infertility and to make sense of people's experiences. For all the years of this research, I therefore carried out a multisited ethnography[59] that included not only repeated in-depth interviews with people undergoing medical treatment for infertility but also interviews and informal discussions with physicians, regular attendance at talks on infertility and reproductive technologies in two hospitals, and frequent attendance at informational workshops and symposia conducted by Resolve, a nationwide support organization for those dealing with infertility.[60]

Seeking treatment for infertility is a middle-class phenomenon. People with low incomes simply cannot afford it because even the most basic medical treatment involves repeated medical appointments and drugs. I was not content to examine infertility treatment only for the middle class, however, and I believed that if we searched for people with low incomes seeking treatment for infertility, we would find them. I was wrong. During all four years of the study we made a concerted effort to locate low-income clinics that treated fertility problems, and the people who utilized them. Unfortunately, these services were almost nonexistent, and our extensive efforts to locate individuals with low incomes who were going through infertility yielded a limited number of people.

Ultimately the ethnographer must choose what to emphasize, and in doing so she shapes the nature of the ethnography. There was never any question in my mind where my own emphasis lay—in people's experiences of infertility. I believe that the multiple and overlapping stories from my research provide a lens onto a series of questions and problems in U.S. society that no other method of inquiry can offer. A comprehensive analysis of reproductive technologies is beyond the scope of this work. What I attempt to do here is to portray in depth the perspectives of people undergoing these treatments in the context of contemporary cultural phenomena. I do not wish to suggest that their experiences are the central ingredient in such an analysis but rather that those experiences are a highly salient piece of a much larger picture.[61]

The majority of women and men in the study had undergone medical treatment for three or more years, although twenty had undergone med-

ical treatment for a year or less. These women and men were recruited from medical practices, adoption counseling services, and a self-help group, and by other participants.

Within this predominantly middle-class sample, 15 percent of whom were members of ethnic minorities, there was a considerable range in income.[62] Although differences in income greatly affected the ability of women and men to pursue costly treatment, they did not affect the richness of respondents' narratives in recounting the disruption caused by infertility or their interpretations of the meaning of infertility for their lives. See the appendix for more details of this research.

I interviewed everyone in the pilot study myself and half of the people in the larger study; the other half of the interviews were done by five other interviewers—three women and two men. Women and men were first interviewed together in detailed interviews lasting two hours or more; follow-up individual interviews took place approximately six to twelve months later, with final follow-up interviews with both partners taking place twelve to twenty-four months later.

The stories in this book illustrate the deep connection between bodily distress and the social order.[63] By this I mean anything pertaining to bodily experience, such as physical and emotional suffering and a person's feelings about his or her body. People's stories express bodily experience. When someone narrates such a story, the story itself can be seen as the enactment, or performance, of bodily experience.[64] Such performances constitute action, a transition from viewing something in one way to viewing it differently. And, as we will see, this process is gendered.

One goal of this work has been to scrutinize people's stories for clues to their bodily distress. I studied all references to the body and bodily distress and examined all reports of medical interventions, as well as all expressions of intense emotion, for their relationship to bodily concerns. I also scrutinized people's stories for links between expressions of bodily distress and discussions of cultural expectations.

When I returned to the homes of people in the infertility study months or even years later, people would frequently say, "Since the last time you were here I have been thinking more about what we talked about, and I have some new ideas about it," or "I am in a different place from when you were here last." The images that people project of themselves and the world through their stories are thus subject to change. Performing one's story to an audience may facilitate that process, especially dur-

ing times of transition when people viscerally experience their own passage through life.

One of the abiding frustrations of those seeking social change is the resilience of certain dialogues within society that maintain cultural ideologies and thereby impose a limited view on life possibilities. People who repeatedly attempt to live up to cultural ideologies, yet fail to do so, experience acute social discomfort and emotional pain. They may eventually come to see those ideologies as interfering with and delaying their attempts to find alternative ways of regaining a sense of normalcy and thus finding meaning in life. I believe that this is why so many people volunteered to participate in this research: out of a conviction that ideas about fertility and parenthood in United States society need to change and that, collectively, their voices might make a difference. It was not easy for any of them to talk with us. Almost without exception, they would have preferred their pain and their innermost thoughts to remain private. But they believe there is a story to be told, a puzzle so complex that only by adding their singular stories to create a whole can they help others facing the same problems to find better answers—answers that involve society as a whole.