

INTRODUCTION

THE PARADOX OF REPRODUCTIVE TECHNOLOGIES

At the beginning of the twenty-first century, we live in a world that differs in many ways from the one of our ancestors. This book is about two contemporary phenomena, the existence of which these ancestors could not have anticipated, not even in their wildest dreams. The first concerns today's level of medical-technical control over human reproduction. The possibility of contraception, the creation of embryos in laboratories, or the temporary removal of fetuses from women's pregnant bellies are impressive technological feats profoundly affecting and altering fundamental human experiences. The second phenomenon defining our times, and equally constituting a radical change, is the level of emancipation and autonomy achieved by women. Never before have they been able to enjoy such relative freedom and opportunity to live their lives the way they want or to choose occupations, lifestyles, and partners. No longer are their lives and identities determined by duties toward husbands and children to the extent they once were, nor is the bearing and rearing of children the unquestionable first and foremost goal of their lives.

The rise of feminism and the progress of medical science are generally considered valuable achievements of our day and age. However, the relationship between the two is fraught with tensions. While there is, by and large, a broad consensus on their mutually reinforcing relationship in areas like contraception, it is far less clear how they relate to each other in domains like high-tech infertility treatment and prenatal medicine. When it comes to the new reproductive technologies, there is much more controversy, with doctors, feminists, patients, as well as concerned professionals from a wide variety of disciplines and religious or political bents pitched against each other. If there is one thing about these new medical reproductive technologies anyone can probably agree on, it is the fact that they have hardly been neglected or otherwise slipped through public attention. If anything, they have been discussed over and over, generating a steady flow of news items, legislative efforts, legal controversies, public moral upheaval, and academic attention from a wide variety of disciplines.

At the very moment this book goes to press, news media all over the world are covering the story of the “Italian madman” announcing his plans to try ‘human cloning’ – somatic cell nuclear transplant or SCNT – as a new infertility treatment. By now it is a near impossible task to give a complete overview of the instances of public controversy these technologies have generated over the last few decades.¹

This book touches upon these debates in a sideways manner. Its main theme is the paradox, perhaps even the contradiction, that has resulted from the combined achievements of medical reproductive technologies and feminism. In significant ways, these technologies suggest a trend in which ever more medical and societal problems are becoming recast as reproductive problems, and ever more of those are finding solutions in interventions in women's bodies. Both in vitro fertilization and prenatal medicine are concerned with problems far surpassing those concerning women's own reproductive health and safety. In vitro fertilization has become important in managing the problem of *male* infertility, while prenatal medicine has yielded a form of surgery that is concerned with the prevention of congenital problems in *children*. Both types of technology comprise invasive, complication-ridden, sometimes risky procedures in women's bodies. They thus seem to constitute, on one level, invitations to women to take precisely the position regarding husbands and children that, on another level, so it was agreed, could or should no longer be demanded of them. In a certain way, these technologies invite women to take responsibility for men's and children's physical problems, sometimes at a considerable expense of their own well-being.

This way of framing the issue of reproductive technologies is not a very common one. There have been few protesting voices against broadening the indications of a treatment first introduced for women's fertility problems to those of men. On the contrary, the use of IVF for male infertility has been welcomed as a great medical breakthrough, and the waiting lists grow longer each day. And although many will still frown upon the idea of fetal surgery, the gradual extension of prenatal care and the concomitant growth in responsibilities, duties, restrictions and physical interventions for women has occurred without significant opposition. It is likely that, given this context, the inclusion of surgical options will eventually come to look like only one, logical step further.

If there has been little recognition of the paradoxical relation between women's recently achieved relative freedom *not* to subordinate their own well-being, interests and pursuits to those of husbands and children, let alone by jeopardizing such a highly valued good as their own health, and the directions taken by today's reproductive technologies, this has many reasons.

One such reason is precisely the extent to which women today are considered autonomous persons quite capable of determining what they want and need. An obvious counter argument to any suggestion that these technologies may be problematic from a feminist point of view is that women seem to want them. If IVF is rapidly becoming the treatment of choice for male infertility, this is because women do want children by their partners, and are prepared to go at great lengths to achieve this. A similar point can be made regarding prenatal intervention: it is because women put such great value on their children's health that they are willing to use all technologies available. If for some this will include undergoing surgery while pregnant, this will be an expression of their own free will to do anything possible to save their child. Questioning this choice could actually be taken as a sign of disrespect for their ability to make up their own minds.

Plausible as such reasoning may seem at first, this book will attempt to show that such an assessment rests on a superficial understanding of how and why we have ended up with these particular technologies and choices. To think that women *want* the painful and risky interventions in their bodies these technologies imply, because they want a child by their partner and one as healthy as possible as well, takes a great deal for granted. In particular, it assumes that these needs and wishes unavoidably and necessarily lead to, and therefore justify, current technologies. While it is true that most women would wellcome the long overdue lifting of the (cultural, including medical-scientific) taboo on male infertility, it is perhaps too convenient to take for granted, that they are therefore also happy to take its physical burden on themselves. It may be similarly true that women wish their children to be spared as much as possible from the painful strokes of fate of congenital disease and sickness, but it somehow seems unfair to infer too readily that this also means that they want or need their own already painful and risky task of childbearing to be increased indefinitely. Moreover, it is perhaps unjustified to assume that these translations of their needs were inevitable and necessary.

This book is an attempt to cast doubt on these assumptions, in order to broaden the scope of critical reflection about reproductive technologies as they are presently taking shape. Although some strong opinions and convictions may be read into this book, it does not offer general answers or blueprints. As a student of science and technology, trained in philosophy and women's studies, I use the modest instruments at my disposal. In writing this book I do not pretend to sit on the chairs of those whose works and words fill these pages. My position and equipment differ from those of doctors, scientists, ethicists, patients, policy makers, editorial boards, or distributors of research funds. I do hope, however, that those feeling addressed, from the

various positions they occupy in relation to the technological developments discussed, will find some resources, arguments or suggestions helpful in evaluating, maybe even redirecting their agendas. In an effort to reframe some of the issues concerned, this book, in general, suggests a redirection of public concern raised by these technologies. It sets out to do so by bringing contemporary perspectives on the history of biomedicine and the nature of technology to bear on them. Through the analysis of the discursive practices of reproductive technology I will show how factors and mechanisms other than the natural, biological givens of bodies and reproduction are at work in shaping technologies that create the need for ever more interventions in female bodies for an ever growing set of reasons.

The first step in breaching the idea of biological inevitability is taken in chapter one, with a short account of the history of the gradual medical-scientific discovery and knowledge production about the female reproductive body. Next, the chapter introduces the theoretical and methodological approach to the study of science and technology informing the analyses in this study. It also provides a preliminary description of the two forms of reproductive technology to which these analyses are applied, IVF as a treatment for male infertility, and fetal surgery for the treatment of congenital anomaly.

Chapter two focuses the central argument on the emergence of two new types of patients, pivotal in the mediation of male fertility and congenital problems and female bodies: *the couple* and *the fetus*. It argues that the conception of couples and fetuses as singular treatable patients is closely connected to the development of reproductive technologies themselves. This constitutes a reflexive move in Katherine Hayles' definition of the term, according to which "that which has been used to generate a system is made, through a changed perspective, to become part of the system it generates."² Instead of describing the new patients as natural categories in need of therapeutical intervention, thus rendering intervention in female bodies biologically inevitable, this chapter shows their *production* through the intricate intertwinements and interactions of technologies and bodies. Focusing on the transformation of problem-definitions, and spatial and temporal shifts in localizations of the medical problems concerned, it describes how couples and fetuses emerge as *hybrid entities* from medical-technological interventions in female bodies.

Chapter three takes the analysis of couples and fetuses as hybrid patient categories one step further. It relates to chapter two as its twin sister, following a conceptual scheme devised by Bruno Latour.³ According to this scheme, processes of hybridization are accompanied by processes of *purification*. While, within our technological culture, a continuous

production of hybrids through the intermingling of nature and culture, bodies and machines, is taking place, this process is simultaneously concealed by discursive reconstruction of pure and distinct ontological categories. The very culture that so habitually and productively mixes the natural and the technological, thus maintains an ontology in which nature and technology, bodies and machines are fundamentally distinct. A similar scheme is used to analyze the relation between couples and fetuses on the one hand, and reproductive technologies and the individuality of bodies on the other. While chapter two deals with the production of fetuses and couples as hybrids, chapter three centers around the purification processes involved. The central argument of the third chapter, then, is that although couples and fetuses are treated as singular patients, these unconventional practices, that mix up the distinction between the technological and the natural as well as the distinction between one individual and another, are accompanied by specific discursive mechanisms that render the "impure" categories familiar and acceptable. A crucial step in rendering the treatment of male problems and children's problems through women's bodies acceptable, or even natural and biologically inevitable, lies in a discursive displacement of 'women' by 'couples' and 'fetuses', and the subsequent reconstruction of the new technologies as forms of treating 'men' and 'children'. The chapter describes how the scientific discourse concerned presents the new technologies as hardly involving any intervention in female bodies, as opposed to the couple's or the fetal body, while, on the other hand, the individuals treated and helped through the technology are referred to as men and children.

Chapter four, then, poses the question what these configurations imply for the female body: if the technology applied to it restores men's and children's bodily functions, what remains of the female body as an *individual* body? What remains of the idea that bodies have *boundaries* marking the distinction between one body and another? These questions about the body ontologies produced within technology's discursive practices are extended to the domain of moral and legal notions of the individuality of the body in relation to concepts relevant to body politics and reproductive politics, such as bodily integrity and bodily self-determination.

Chapter five, finally, answers the central question of this book by drawing together the conclusions from the previous chapters. The question how to assess current developments in reproductive technologies is answered by comparing technology's constitution of women's relations to men and children through its rendering of forms of female embodiment with feminist goals and emancipatory body politics. It then moves the problem to a different plane of discussion by confronting these conclusions with current developments in *feminist theory*. In its emphasis on dissolution and

CHAPTER 1

PRELIMINARY MOVEMENTS

The Body of Theories, Practices and Texts

1. INTRODUCTION

The first step to be taken in loosening the apparently self-evident links between women's wants and needs and the particular answers offered by contemporary technologies concerns addressing the underlying assumption of their biological inevitability. There is a persistent belief in the status of biomedical knowledge, the supposed basis for current technological practices, accountable in considerable part for this sense of inevitability. If there is no sense of any paradox arising from women's emancipatory efforts and current technological developments, this has to do with a widely held presupposition that the very notion of politics is not applicable when it comes to bio-medicine. Biology, describing the *nature* of bodies, cannot be political; therefore, as long as biological knowledge is considered to be true (and as long as the technologies designed on that basis, as the standard view on these matters assumes, work), it cannot be contested; biological knowledge merely forms a growing set of ahistorical, natural facts, that we can only discover, accept, and use to our advantage. In the context of reproductive technology, this broad and general belief translates into the following one: if women's bodies are the object of intervention in practically all reproductive technologies, and for medical problems that by long have surpassed those concerning their own reproductive health, this has nothing to do with any kind of politics. It merely reflects and follows from the biology of reproduction. There is no way around the fact that it is women who have children, and from this everything else follows. Women can freely choose to take or leave the technologies on offer, but the configuration determining the choices open to them has been shaped by the biology of reproduction itself.

In order to begin critical reflection upon our culture's apparent need for the technologies it has developed, it is this idea of biological inevitability that needs nuancing. If it is the nature of the female body that dictates how and where medical problems surrounding reproduction are to be located and addressed, this is a nature that resulted from a very particular history. The

next section sketches patterns in the history of medicine's and science's dealings with the female body, and the resulting knowledges and practices, and indicates in a provisional manner how these patterns continue to play a role in the present.

Next, and this constitutes the main challenge of this book, it is crucial to demystify the notion that the new reproductive technologies provide the definitive and inescapable singular answer to women's problems and desires. This requires a perspective on technology that differs from the one that is usually implicit in public reflections and evaluations of reproductive technologies. Common to most conceptualizations of the issues arising from these technologies is their framing in terms of *effects* and *consequences*, or even of consequences and effects of certain *applications* of technology. This pattern is probably largely accountable for the fact that of the many feminist concerns about these technologies, only those restricted to debating the risks, the efficiency, and, occasionally, the "psychological impact" of these technologies, succeeded in gaining a wider hearing. The same pattern underlies the emphasis in many public and political debates on these technologies on ethics. A frequently used way to raise public concern about technology is a statement about there being "moral issues involved", as a sort of appendix to the mere technical, medical aspects.⁴ How exactly the implied boundary between fact and value is drawn may vary according to one's preferences in what should be up for debate, but the distinction is usually there.

But wherever the line between the technology itself and its consequences or effects, between the methods and their applications may be drawn, using such distinctions presupposes that there is a sphere where technology, science or medicine exists in a pure, neutral form. So, paradoxically, this way of defining public problems concerning medical science and technologies actually constructs them in a way that simultaneously puts them beyond the grasp of moral or political scrutiny to considerable extent, since the definition of the 'moral problems' is postponed until after the establishment of 'the facts'. Hence the feeling of many that such reflections are always more or less running behind the facts and not really capable of influencing technological developments. Medical science and its inventions, so it is experienced, will always be one step ahead, with 'society' always reacting to the latest development, after the fact. This way of conceptualizing technology in effect creates a space where it can develop relatively undisturbed.

This book proceeds from a perspective on technology that is conceptually rooted in a type of technology studies that tries to focus on the "inner workings" of medical science and technology, as opposed to their effects,

consequences and applications. It seeks to locate the moral and the political within what counts as 'technology itself', within what counts as 'scientific fact'; more precisely, it does not accept the distinction between technology and science on the one hand, and the moral, the political or 'external effects' on the other, as a priori given. Try, for instance, to explain or describe what the technology of IVF "in itself" is. There is no way to do this without describing what is *done*, and thus at least implicitly, such a circumscription contains a practice, some application, purpose or consequence; a norm for what counts as successful or standard application; it necessarily involves describing actions, patients and their body parts, and what happens to them. One cannot identify these technologies apart from what are usually thought to be 'external' aspects. This is especially true for complex technologies like IVF that involve a series of actions, techniques, machines and experts, so that there is no one particular machine or piece of hardware that might be (erroneously) identified with the 'technology itself'. Medical technology always implies a particular way of *doing* things, a *practice*.⁵ Actions, attitudes, words, texts, values, norms, and social relations are considered as integral to the technology as the instruments, chemical substances, and laboratory procedures. The third section of this chapter elaborates this view on technology and its relation to science, and introduces some of the key concepts used in this study.

This chapter's fourth section introduces the two technological practices that form the subject of this study. Some "figures and facts" of *in vitro* fertilization, specifically as a treatment for male infertility, and fetal surgery are given, in order to delineate the contours of both practices. The final section develops the central questions of this study and discusses the theoretical views informing the analyses presented in this book. In particular, it argues how analyzing medical-scientific texts can contribute to our understanding of current developments in reproductive technologies as well as the way female bodies are configured in these practices.

2. A COINCIDENCE OF MEDICAL SCIENCE, HISTORY AND BODIES

A strong and widespread conviction persists, that from 'the rise of modern science and medicine', there has been a steady accumulation of empirically grounded, valid knowledge, that could not have been otherwise, since this knowledge steadily uncovered how bodies and reproduction actually work. At the same time, however, anyone with only a marginal interest in the subject will be aware of medical practices and theories concerning women (but not only them) in the past (but not only in the past) that from today's perspective are ranging from the laughable to the deeply shocking and

apalling. But however such past practices and theories may be denounced today, they never seem to be considered of actual consequence for our knowledge and practices today, whether this 'past' concerns the early nineteenth century or a mere decade ago. Thus a strange combination of beliefs predominates views on contemporary reproductive medicine: on the one hand modern medicine and biomedical science are seen as long standing, cumulative traditions, while on the other hand its results and products, its theories, practices and technologies, are held to be untainted by anything so mundane and contingent as history and tradition.

It is not my intention to give here a comprehensive and detailed account of the history of modern science and medicine concerning sex, gender, and reproduction. I do want to draw attention, however, to some aspects of this history in as far as this provides some elementary and necessary background for the issues addressed in this book. As will become clear below, recent historiographical studies suggest that the more problematic historical aspects still thoroughly shape the reproductive biology that today is thought to dictate the configurations in which the female body appears as the object of interventions for an ever growing set of medical problems. To see this, one has to be prepared, if only for a moment, to postpone taking recourse to the ever available and all too often invoked male and female bodily differences and gives as explanations for the current nearly exclusive involvement of women in reproductive technologies.

This section is primarily an argument against biological determinism. In an attempt to move away from biological determinism, two main approaches have become prevalent. One type of criticism of science, developed mainly within women's studies of science and the philosophy of science emphasizes the cultural and social origins of the prejudices and biases that color the content of scientific knowledge. This critique has yielded a lot of convincing evidence against science's claims of neutrality and objectivity, on the levels of its choice and formulation of research questions⁶, its methods⁷, up to its epistemology and specific ideals of neutrality and objectivity⁸. Valuable as this type of criticism has been, it runs into some serious problems. In its conceptualization of 'biases' and 'prejudices' as the main causal factors in scientific knowledge production, it implicitly assumes that the ideals of neutrality and objectivity themselves still hold. Moreover, in attributing what it sees as 'bad science' to massive cultural and social factors, like gender structures and enduring male dominance, it replaces biological determinism merely by another type of monolithic determinism: a social or cultural determinism that reads too much intentionality and monocausality into the history of science. When "male thinking" and psychology are designated the

main causal factors in the generation of biased knowledge, it even is in danger of letting biological determinism seep back in through the back door.

Against such readings of science argues a second approach that emphasizes the contingency of scientific knowledge production. Usually referred to as 'science and technology studies (STS)', this approach combines ethnography, sociology, historiography and philosophy in empirical studies stressing the heterogeneity of factors at work in scientific practices.⁹ Rather than seeing scientific development as driven by (bad) ideas and broad, almost ahistorical cultural patterns, this tradition emphasizes institutional, social, and material factors that shape the specific, historical configurations of scientific work. Yet the problem with this approach - besides its rhetoric of 'empirical correctness' on account of the empirical detail it strives for - is that it tends to generate its own blind spots. Despite its claim to empirical comprehensiveness, it cannot avoid being selective as well. A bias toward classic sociological factors, such as institutions and interactions between groups, may have given way to a new trend of stressing 'material' factors and the role of artefacts and objects, but the selectivity necessarily remains. Thus, for example, in its focus on 'contingency', its identification of relevant factors in the construction of certain scientific facts or technologies may diffract in all kinds of directions in a particular episode. this may result in a failure to account for more enduring patterns over time.¹⁰ Both approaches are nevertheless important for their critique of scientific rationalism and biological determinism. The following reconstruction of developments in medical science, as pertaining to the historical background of contemporary knowledges and practices regarding reproductive bodies, makes use of indispensable insights from both traditions. As such it tries to avoid the pitfalls of overemphasizing intentionality and broad cultural determinisms on the one hand, and too much contingency and lack of awareness of more enduring patterns on the other.

Today there are myriads of ways, opportunities and reasons to intervene in women's reproductive bodies. Libraries are stacked with gynaecological atlases and textbooks, and we have an endlessly proliferated nomenclatura for potential female pathologies and conditions in this area of medicine. This situation results from a long tradition of medical and scientific practices aimed at the female reproductive body. In comparison to our knowledge of and attention for the male reproductive body, one could argue that women as reproductive bodies suffer from overexposure.

The development and production of knowledge about any phenomenon are not determined by intrinsic properties and characteristics of that phenomenon (since these are the very product, or substance of the resulting

CHAPTER 2

THE MAKING OF THE NEW PATIENTS

1. INTRODUCING: THE COUPLE AND THE FETUS

To speak of fetuses and couples as patients may seem neither particularly surprising or consequential. After all, we all know that pregnant women carry fetuses in their wombs that may have something wrong with them. In such cases, it seems hardly strange to talk of these fetuses as little patients in the womb. Likewise, couples who, despite serious efforts, are unable to have children, have a problem that may lead them to seek medical help together. But everyone knows that fetuses grow inside women's bodies, and it is women who will visit doctors, who ask for and are given advice, prescriptions and tests. Similarly, everyone knows that a couple consists of two individuals with separate bodies. They may have a problem as a couple, but the shared nature of their problem stems from their shared wish for a child and shared grief about its remaining unfulfilled. So, while it seems self-evident that fetuses and couples may have medical problems, to call them 'patients' is just a manner of speaking, not to be taken too literally. At any time it will be clear who the 'real' patients are. For all practical purposes, it would hardly seem to make any difference. However, Meerabeau, drawing on observations of 55 clinic sessions in three fertility clinics in the United Kingdom, concluded: "Doctors are not accustomed to treating more than one patient simultaneously, and the use of the concept 'couple' in subfertility treatment presupposes a commonality of aims which may not exist. ... There are attempts to construct the fertility problem as a joint endeavor, but these tend to founder on the biological imbalance in the situation."¹³¹ Moreover, This view about the innocence and inconsequentiality of language and conceptualizations relies on the idea that the relation between language and reality is one in which language refers to an independent reality. This view implies that changes in vocabulary have no consequence for the reality described, since language only passively "mirrors" this reality. In this work I rely on a theory of language that accords a much more active role to language in the constitution of the realities we inhabit.¹³²

In this chapter I will develop the argument that the notions of the couple as patient and the fetus as patient are simultaneously more 'real' *and* stranger than their current prevalence in medical-scientific discursive practices suggests. Fetuses do not just figure as patients in the fancy titles of the many recent textbooks, articles, and reports on current developments in prenatal medicine. The concept of the fetus-as-patient has gained a presence much wider than that. Similarly, the couples in infertility medicine play the role of patient in a much more literal sense than might be expected from the everyday use of the word. Within the discourses on fetal surgery and in vitro fertilization, 'fetuses' and 'couples' have come to occupy positions very similar to those of more conventional types of patients. Like patients in general, they are referred to clinics, undergo tests, and receive diagnoses and treatments. While their patient status has thus become 'real', at the same time this development constitutes a departure from the meanings 'fetuses' and 'couples' have in contexts other than reproductive medicine, as well as from more conventional meanings of what being a patient is. In as much as they have been turned into real patients, 'fetuses' and 'couples' become rather strange entities.

First, we will take a closer look at the 'couples' populating the discourse on male infertility and reproductive technology. The term 'populating' intends to underscore once more that my approach to these texts will primarily be a semiotic one, in the sense that the question what the terms and categories deployed refer to *outside* these texts is (temporarily) bracketed. As Bruno Latour, explaining the value of a semiotic approach to scientific texts in the study of science and technology, writes: "Semiotics is the ethnomethodology of texts. Like ethnomethodology, it helps to replace the analyst's prejudiced and limited vocabulary by the actor's activity at world making."¹³³ Moreover, the focus is on the world that is emerging from the texts, without reference to the presumed intentions of the author or the social context. Thus, I focus on *internal* referents and meanings generated by the texts themselves.

From this perspective, infertile couples are far less ordinary than their strong resemblance to the well known social category that denotes a combination of two individuals somehow belonging together might suggest.¹³⁴ The rapidly developing discourse on infertility treatments seems to have construed a creature that - although called a 'couple', or sometimes a 'male factor patient' or an 'infertility case' - seems more adequately described as a hermaphrodite being, rather than a combination of two recognizable individuals of different sex.

Numerically, for instance, couples are not counted as two patients, but as *one*. Papers reporting clinical research involving only a small patient sample

commonly refer to individual cases with a number. A man and a woman who make up a couple are counted, in these reports, as one, so that when there are, for example, 15 couples involved in a study, the total patient count is 15 rather than 30. Naturally, a reader will take "patient no.6" to refer to one particular human being. This patient might be said, for example, to suffer from oligospermia. The reader then will infer that patient no.6 is a man, because she knows that oligospermia is a pathological condition of the male reproductive system, in which the sperm produced contains abnormally few spermatozoa. When next, however, the reader is told that this same patient underwent an embryo transfer (ET) and became pregnant, she starts suspecting that this patient is not exactly an average male human being.

One might think that such phrases are just one author's occasional slip of the pen, resulting in an accidental omission of words like "the wife of", in the sentence about ET and pregnancy. The same phenomenon, however, turns up again and again throughout the literature. Consider the following examples, taken from scientific publications on the use of IVF in cases of male infertility:

Ooplasmic injection (single sperm heads) was done in 38 oocytes from three patients with extremely severe oligozoospermia; only four pronuclear zygotes were obtained and replaced into two patients, without any resulting pregnancy.¹³⁵

In severely teratozoospermic patients, significantly fewer partially zona-dissected than subzonally inserted embryo's implanted.¹³⁶

Fig.3 Ongoing pregnancy rate per cycle in different groups of men with the corresponding lower limit of sperm concentration.¹³⁷

In the first two quotes, we find the same patients being oligozoospermic or teratozoospermic, as well as producing oocytes and having embryo's replaced into their bodies. The third quote shows how far this discourse is removed from most other discursive practices. Without a trace of irony the authors claim the achievement of pregnancies not just in couples, but literally in men. However, instead of ascribing to the authors a rather incredible ignorance about the facts of life, quotes as these are perhaps better interpreted as showing the degree to which couples indeed have come to be considered as one functional organism in this practice. They have become true hermaphrodites: one patient, with both male and female physical characteristics.

The conceptualization of a fetus as a patient is a departure from long standing conventions as well, but some other nuances are involved here. While the conception of the fetus as a patient in itself might have allowed for

the woman to retain her conventional status as the patient in prenatal care (thus yielding a "double patient"), this is very rarely the case. Each 'case' yields one patient only, and though it can remain ambiguous for some time in the course of a particular text, whether this 'patient' refers to a woman or a fetus, this ambiguity is usually resolved at some point, as in the following example:

In their review of 74 fetuses with bilateral hydronephrosis, they reported results on 16 patients who were defined as having good prognosis. Nine of 16 patients had intervention, and 7 of 16 did not have intervention. Of the 9 patients with intervention, 8 were delivered with normal renal function. Of the 7 patients with no intervention, 2 died, and 2 of the 5 who survived have chronic renal failure.¹³⁸

To have a good prognosis, an intervention, and to be delivered are things that could be said of a woman as well as a fetus. Yet the last two sentences resolve the ambiguity, for the renal function, death, and survival of 'the patients' clearly apply exclusively to the fetuses. In another case, the patient "was referred at 23 weeks with anhydramnios, bilateral moderate hydronephrosis/hydroureter, and an enlarged bladder and proximal urethra."¹³⁹ Again, the referral and diagnosis of anhydramnios (lack of amniotic fluid) could still indicate a woman patient, but the rest of the diagnosis undercuts this interpretation for it refers unequivocally to the state of the kidneys and the urinary tract of the fetus. Usually, however, there is less ambiguity. In the following examples it is the fetus who is undergoing diagnostic procedures and interventions:

Ten fetuses had undergone diagnostic catheter placement and in utero renal function testing. This led to placement of a therapeutic indwelling catheter-shunt in seven fetuses (three required multiple shunts) and a suprapubic vesicostomy in another.¹⁴⁰

Twenty-two fetuses with bilateral CH [congenital hydronephrosis] underwent either a diagnostic procedure, a therapeutic procedure, or both.¹⁴¹

An additional potential problem, therefore, is that those patients with a large volume of liver in the chest may not respond to antenatal therapy, as the lungs may be primarily hypoplastic and incapable of growth when the viscera are removed.

Nevertheless, because of their expected high mortality, these are the very patients on whom it is most easy to justify antenatal intervention.¹⁴²

...a second fetus with immunodeficiency disease was treated prenatally in 1989. This second patient was a younger fetus with a

complete form of severe combined immunodeficiency disease. He was treated with FLT in June 1989, at the age of 26 fertilization weeks,
¹⁴³

In a similar vein, the results of the procedures and the concomitant complications are described as pertaining to the fetus exclusively. For instance, the report from the International Fetal Surgery Registry¹⁴⁴, purporting to give an overview of the results of all the registered cases of in utero therapy for obstructive uropathy, hydrocephalus, and diaphragmatic hernia up to 1985, relates these results exclusively in terms of 'fetal outcome'. All "cases" reported are of "treated fetuses", and all evaluative categories (including numbers of stillbirths, neonatal deaths, survivals with or without handicap, procedure related deaths etc.) refer to the fates of fetuses and children. Not once are 'women' mentioned throughout the report, not even in the category of 'complications'.

While a 'couple' can be understood as two patients becoming one, resulting in a hermaphrodite being, it is less clear how to describe what happens in the case of fetuses. Although it would create a nice symmetry to understand this see as a process of one patient becoming two (the double patient model), the examples given above show that this is not exactly the case. There still is only one patient. One possible interpretation is to view this as an instance of "pars pro toto": 'the fetus' as a figure of speech that names a part to stand for the whole, a pregnant woman. Though perhaps somewhat impolite, this would render the fetus-as-patient an innocent figure of speech, leaving the woman's position unaltered.

However, many feminist critics of developments in prenatal medicine and technology have taken a less sympathetic view on the phenomenon of fetal patients.¹⁴⁵ They worry that putting the fetus central stage may negatively affect the position of the woman as the primary focus of medical concern. Their analyses have focused mostly on prenatal diagnostic technologies, such as ultrasound and fetoscopy. These techniques produce visual representations of the fetus that literally remove the woman from the picture. Her receding into the background, or reduction to 'fetal environment', is taken as a possible sign of a diminishing relative weight of her interests in medical considerations. My examples above do seem to support this conclusion: where the fetus becomes the patient, the woman no longer appears to be.

But the fact that women are not represented as *the patient* leaves open the question how they *do* figure in this textual practice. Despite instances like the Registry's report, it is hardly conceivable that they are not in some way or other acknowledged to be present. The significance of the semiotic

CHAPTER 3

TREATMENTS FOR MEN AND CHILDREN

1. INTRODUCTION

Crucial to the analysis of reproductive technologies is the recognition that these practices do not only involve the blending of nature and technology, but also that they constitute discourses on the production of *individuality*.²⁰² This is one of the reasons why "reproductive politics" has been and still is central to women's emancipatory struggles. Pregnancy is about the making of new individuals, about processes of individuation, about two bodies becoming one, one body becoming two.²⁰³ Individuality, however, whether understood psychologically, morally, legally, or even biologically, is not a pre-given ontological category, but always a contingent achievement.²⁰⁴ At the same time, it is fundamental to most of our notions that invoke normative issues in medicine, such as patient autonomy and bodily integrity; it underlies patient rights and informed consent procedures in medicine. With respect to bodily self-determination, for example, it is obviously required that it be clear what counts as self, and what as other, where the boundaries of the individual body are drawn. In contemporary reproductive technologies, however, it is precisely these boundaries that are at stake and being redefined.

By focusing on two fields within reproductive medicine and technology, infertility (in vitro fertilization) and congenital disease (fetal surgery), the emergence of two new, extraordinary types of patients was analyzed in the previous chapter. Extraordinary, because they depart from conventional notions of what can count as an individual patient. 'The couple' in infertility treatment (male infertility in particular) and 'the fetus' in fetal surgery have come to be considered independently identifiable and treatable, single patients. Significantly, they have emerged as such in contexts where women now are being medically treated for problems that used to belong to others, that is, for problems that used to be their children's and male partners'. Moreover, this development challenges any self-explanatory use of the notion of a patient's bodily self-determination in medicine, because it occurs

in technologically induced clinical contexts where it is no longer clear *which* selves or *whose* bodies precisely are involved and to what extent, nor is it even always possible to say *how many* selves and bodies exactly are involved.

Both couples and fetuses are construed as patients in the very process of defining and transforming the problem from which they are said to suffer, and of which technology is supposed to relieve them. They thus constitute two highly consequential instances of the way reflexivity helps us see how “an attribute previously considered to have emerged from a set of preexisting conditions is in fact used to generate the conditions,”²⁰⁵ In the process of shifting the problem of male infertility spatially in and out of bodies, body parts, laboratories, and Petri dishes, 'the couple' appears as the new bearer of the problem thus conceived. Similarly, congenital disease can be seen to transform according to changing temporal designations of the occurrence of the problem. From being a problem of born children, congenital disease has shifted into the prenatal period, where a 'fetus' is now considered a patient indicated for therapy. These transformations are achieved through elaborate medical procedures, consisting mainly of interventions in female bodies. Again, it is the scientific experiments themselves, that “produce the nature whose existence they predicate as their condition of possibility.”²⁰⁶

In this chapter, the analysis of 'the fetus' and 'the couple' as 'hybrids' produced in technological practices, is taken one step further. I describe how the notion that fetuses and couples *are* patients is sustained and made durable through scientific accounts that present the construction and transformation processes described in the previous chapter in reversed order. Instead of considering medical interventions as the material preconditions from which new problem definitions and new patients emerge, these texts retrospectively present the medically defined problems of fetuses and couples, as well as these patients themselves, as pre-given phenomena. The problems and the patients are thus seen as the unproblematic starting points from which interventions follow, rather than the other way around. In order to achieve this reversal, the traces of the interventional work necessary to establish male infertility as a couples' problem, and congenital disease as a fetus' problem, are erased from the accounts. I will show how the ambiguous status of these new patients with respect to both naturalness and individuality is resolved by specific discursive patterns.

The first section describes a type of pattern that, following Star (1992), is referred to as 'deletion'. It concerns a class of discursive mechanisms that accomplish the *erasure of interventions* on female bodies, and, by implication, their constitutive role in establishing new patients and new problem definitions. The second section deals with another pattern that

further enhances the idea that these technological practices are not about 'women' or 'female bodies'. This 'purification' pattern, as Latour (1993) has called it, reduces the duplicity of fetal patients and infertile couples. Instead of being about women and men as couples, and about women and future children as in fetal surgery, this pattern shifts the tenuous balance by suggesting that these practices are actually still, above all, about *men* and *children*. This makes recognition of the shift of medical problems between 'individuals' significantly more difficult (for, as will be taken up in chapter four, it diminishes the possibilities of seeing individual female bodies being involved in these technological practices at all). A further illustration of the working of the mechanisms involved in these two patterns is given in the third section on scientific evaluations of the technologies. Finally, the chapter concludes with some remarks on the possible effects of these patterns on the changing position of the female body in medico-technological reconfigurations of reproduction and the potential for contesting these changes.

2. THE DELETION PATTERN

An often observed characteristic of scientific discourse is that it produces a sense of neutrality, objectivity, and naturalness for the facts and objects it describes through what can be called "cleaned up accounts".²⁰⁷ In the first chapter several arguments and examples were given in order to highlight this function of style in scientific writing. Here, I want to focus in more detail on one form of such stylization that is specifically relevant to the politics of science and technology. The standardized formats and economic use of language so typical of technical, scientific writing accomplish effects that go beyond verbal parsimony. Purporting to give only scientifically relevant results, a highly stylized rendering of the work is achieved by leaving out most of the practicalities, day to day contingencies, and details that constitute the larger part of doing scientific research. Thus, in its representational practices,²⁰⁸ science - and experimental medicine is no exception here - produces its results, its discovered facts and objects, through inevitable selection of relevant details from a sea of irrelevant ones, by making distinctions between trivial practicalities of the experimental set up and significant theoretical or methodological advancements and results, and so on. Of course, any writing or reporting must necessarily be selective and make distinctions between what is relevant and what is not. Therefore, this selectiveness as such is productive: without it the very possibility of giving informative accounts would be lost.

However, this inevitable selectivity also means that there is no such thing as neutrality in writing. The criteria according to which one distinguishes between the relevant and the irrelevant, between information and noise, constitute a specific perspective, one that inevitably excludes others. From such other standpoints, particular selections of what is to be deleted and rendered invisible may come to look far less innocent than mere practical detail. Star (1992), for instance, convincingly argues that it is also the entire social and political constellation (divisions of labor, distributions of resources, and so on) from which the scientific pursuit of natural facts proceeds, which is erased in this selection. Thus the purity of scientific result can be seen to stem from an unavoidably partial selection of what will be related, from an inevitable complex configuration that is anything but pure or power-neutral.

In this section I focus on some of the 'deletions' involved in constructing couples and fetuses as patients in high-tech experimental reproductive medicine. I focus in particular on practical and material 'details' concerning the way in which female bodies are implicated in these practices.

A first point in this respect is the close interrelationship between the all-pervasiveness of the deletion pattern and the fact that 'couples' and 'fetuses' are considered the patient (in IVF and fetal surgery respectively). This translates into an immediate pattern in which interventions are not described as interventions on female bodies, but instead as interventions on said couples and fetuses. Referring to the fetus as the one undergoing procedures in fetal surgery is by now the standard way of describing things, despite the fact that women are physically involved here. Similarly, in IVF it is couples who are said to undergo the various invasive procedures involved in the technique, a way of speaking that replaces descriptions of women as the patient undergoing procedures. Especially in procedures that involve female bodies only, however one may define 'others involved', it is at first sight puzzling why the interventions should be referred to as follows:

Intratubal embryo transfer was carried out in 95 *couples* in whom male disorder was the main reason for infertility. All patients had had at least three intrauterine inseminations before they entered the IVF programme.[...] Four main schemes of ovarian stimulation were used in these *couples*.²⁰⁹

Obviously, both stimulating ovaries and transferring embryos into fallopian tubes is carried out on female bodies, something which seems unnecessarily obfuscated by ascribing it to 'couples'. But this pattern of redescribing interventions on women as interventions on 'other' patients, does not stand alone. It is accompanied by other, less obvious versions of the same mechanism that, together, produce a consistent, cumulative effect. This

effect, that probably was never consciously intended by anyone, may nevertheless be quite consequential.

The several varieties in which the pattern occurs have something in common. They achieve the deletion of the involvement of female bodies through *reconceptualizing intervention*: the actual interventions are redescribed and transformed into something else. This concerns less the fact that it is female bodies that are involved, as in the first example of the pattern given above, but rather the interventional character of the procedures themselves so that they are no longer visible as (part of) the therapeutic efforts proper.

A phenomenon constituting a major reconceptualization of therapy is the conceptualization of (major) surgery on pregnant women for congenital disease of future children as "prevention",²¹⁰ as is unambiguously stated in the following quote:

Advances in diagnostic and surgical techniques have provided a new basis for prevention of certain congenital defects by intrauterine therapy.²¹¹

Since the term 'prevention' signifies taking early action in order to avoid the occurrence of more serious problems that need more drastic interventions later, its appropriateness in this context is rather questionable.²¹² However, the point here is not to evaluate the appropriateness of conceptualizing surgery as prevention, by weighing the preventive measures against the harm prevented, but to consider the effect of a conceptualization as prevention in itself. This effect can be described as pulling attention away from the intervention as intervention and redirecting it elsewhere. 'Prevention' invokes an image of something prevented which tends to overshadow and downplay the means of prevention itself; as Ulrich Beck writes: "The center of risk consciousness lies not in the present but in the future"²¹³ Thus, the projected dangers of the future, the images of potential harm, are highlighted in a way that makes the interventions in the present become relatively shaded: preventive fetal surgery is primarily about some future damage avoided. The preventive measures in the present have, as a consequence, become secondary.

In this way the pervasiveness of the vocabulary of prevention in the discourse on fetal surgery suggests serious questions about its limits as an endeavor with a distinctly positive ring to it. Prevention relies on an estimation of risks, it involves the prediction of a future course of events that may then be altered and improved. In the case of pregnancy, establishing the required prognosis or diagnosis is a meticulous process of reducing the uncertainties inherent to every prediction by a growing series of increasingly invasive and risky procedures. Closely connected to the deleting effects of

CHAPTER 4

ELUSIVE BODY BOUNDARIES AND INDIVIDUALITY

"Of course, who controls the interpretation of bodily boundaries in medical hermeneutics is a major feminist issue."²⁵⁶

1. INTRODUCTION.

In the previous chapters I described a variety of mechanisms which have contributed to the emergence of fetuses and couples as patients and which have in part facilitated the development of IVF and fetal surgery. Arguments were presented to show that medical interventions redefine and relocate the problems addressed in ways that simultaneously transform the patients suffering from these medical problems. Precisely in doing all the medical work necessary to arrive at the particular diagnoses involved in fetal surgery and IVF for infertile men, new problem-definitions as well as new patients have been construed. Prior to artificial fertilization and modern prenatal technology, couples nor fetuses were considered to be patients as such.

Technologies, of course, do not develop in a social-historical vacuum. They arise from and subsequently become part of particular historical contexts of action that, in turn, constitute a set of pre-existing conditions and facts for further developments. One of the pre-given facts in reproductive technologies, the consequentiality of which can hardly be overlooked, is the centrality of gynecology and its traditional object, the female reproductive body. Both in vitro fertilization and prenatal technologies evolved out of intensified exploration of the female reproductive body, yielding new interventional methods for female conditions. Thus a framework was created in which the reproductive couple as well as the fetus gained visibility and were made into newly demarcated objects of treatment. It takes work on the female body to exteriorize ova and produce the 'interface' of gamete interaction so crucial for the construction of the couple as the patient in male infertility. Similarly, it takes work on the female body to generate the images and data that make up the congenitally affected fetus. This focus on work and action (in the form of medical intervention in bodies) rather than

knowledge (of how bodies function) provides better insight in the mutually constitutive relationship between the body and the development of technologies. Far from being the result of the application of existing knowledge, technologies tend to be used on bodies while it is still highly disputable whether the relevant medical knowledge is available. This knowledge, specifically that regarding fertilization processes and fetal development, is clearly what results from these practices.

The medical-technical work of the past two decades has caused significant shifts in perspective and focus. We have ended up with gynaecological practices, some of which have the explicit purpose to help others than this field's traditional patient: women. In vitro fertilization has become, among other things, a method to restore or maintain functions of the male body; fetal surgery is geared toward curing "children". Corresponding to these shifts are the medical disciplines now in cooperation with gynecology in the two technological practices. Both IVF and fetal surgery are interdisciplinary practices involving teams of specialists from multiple fields. Besides gynecological knowledge and skills, andrological ones are involved in IVF for male conditions, while neonatologists and pediatric surgeons are prominently present in fetal surgery. Boundary crossings between disciplines, and the resulting hybrid medical fields of IVF and fetal surgery, form the institutional correlates to the new hybrid patients these practices have generated. Where couples appear, gynecologists need andrological knowledge; where neonatologists and paediatric surgeons cooperate with gynecologists, fetuses become the focus. The dissolution of boundaries between traditionally separated fields of work corresponds to a comparable dissolution of boundaries between their respective objects/patients, that is men and women, and women and children.

But in all these changes mergers and boundary crossings, a huge paradox has become evident. This paradox stems from the fact that despite all these changes one thing has remained stable. While it is true that most learning is achieved by doing and making mistakes, the strange thing here is that while the 'doing' still concerns female bodies, the 'learning' is about helping men and children. Whereas both patients and problem-definitions have been radically transformed, the primary objects of intervention have, by and large, remained the same. It is still ovaria, uteruses, vaginas, tubes, in short, the female reproductive body that undergoes most of the interventions and manipulations involved in both practices. Paradoxically, however, it is precisely women who seem to have become unrepresentable in these new practices. This situation appears all the more puzzling if one considers its counterpart: whereas the other two patient categories, men and children, are, each in a different sense, absent as objects of clinical interventions, they are

represented as individuals. As I showed in the previous chapter, when fetuses and couples are treated, women are not around, but children and men all the more so. While it is still women's bodies on which the various specialists now jointly work, and not those of men or children, the involvement of women's bodies evaporates from both discourses. These bodies are no longer visible as discrete entities, or considered as the body of an individual human person.

2. BODY BOUNDARIES

Why is it so hard to see 'women' and female bodies in practices that focus so much on female body parts? How can we understand that manipulating ovaries and wombs is compatible with talking about 'men' and 'children' as the individuals concerned and not 'women'? How is it possible that the notion of women as individuals is deconstructed in these practices, whereas the individuality of men and children appears to remain in place?

The answer to these questions is already partly contained in the analyses presented in the previous chapters. I will suggest here that it is precisely in "deconstructing" the notion of women as (embodied) individuals that these technologies can be designed as treatments for others, and, ultimately, that the individuality of the men and fetuses involved can be construed as unproblematic and stable in these practices. It is neither coincidence nor a natural necessity that women and women's bodies have disappeared from view in these new medical-technological discourses, but rather a built-in characteristic of these technologies, one that make them 'work' in the first place. As I will argue, it is a requirement or even an accomplishment of these technologies, rather than a necessity following from the nature of bodies or reproduction.

To develop my argument, a detour is needed first. Connected to the notion of an individuated or individual body is the concept of body boundaries. To be visible as an individual body, some sense of a boundary of that body has to be there. To see something as an individual entity, an *Einzelkörper*, a demarcation is required, marking what does and does not belong to that body. Body boundaries perform this function, defining the inside and the outside, self and non-self. Therefore, part of the answer to the question why women and female bodies go unrepresented in these technological discourses can be obtained by exploring the issue of female body boundaries. In the context under discussion, it is no longer clear what constitutes the female body proper, and thus what constitutes the body a woman may call 'her own'. However one may value the new possibilities for intervention, with the simultaneous creation of 'patients' like fetuses and

couples, female body boundaries become rather fuzzy. The lack of representation of women as individuals may be connected to unclarities in the demarcation of their bodies from 'others'. Therefore, this chapter will set out to explore the role of body boundaries in these practices.

Seen in this light, the *modus operandi* in IVF and fetal surgery can be described as oriented in large part precisely toward the goal of overcoming body boundaries. Much of the work involved in both practices serves the purpose of rendering opaque bodies transparent. The goal of obtaining access underlies many of the interventions, and possibilities for intervention are created by externalizing processes and phenomena internal to the female body, overcoming the distinction between the inside and the outside of the body. Opening what is closed to intervention, disclosing what is hidden from inspection, getting out what resists easy manipulation - these are the recurring themes.

The prominence of ultrasound technology, both as 'diagnostic' apparatus and guiding instrument in invasive procedures is highly significant here, indicating the centrality of the need to overcome body boundaries and create transparency. It is used in monitoring follicle development, extraction of ova, and confirmation of pregnancies after embryo-transfers in IVF, and in fetal surgery it is a near constant presence providing visual access to the fetus, before, during, and after most procedures. Ultrasound and its ubiquitous use in modern medicine has been analyzed by many authors as a primary example - within a range of contemporary visualization technologies - of the way modern medicine transforms opacity of bodies into transparency.²⁵⁷ In less general terms, it has been described how its first and foremost use has been in obstetrics, a fact from which its cultural significance is derived as a potent, political factor in changing general perceptions of pregnancy. Generation of a new and compelling iconography of the fetus with a broad cultural, political, and psychological impact has been attributed to visualization techniques.²⁵⁸

The description of modern (reproductive) medicine as aiming at externalization of inner processes and tending to unveiling what is hidden from view can be found in the discourse of reproductive medicine itself. Such metaphors are even conspicuously present in the following quote from M.R. Harrison, one of fetal surgery's leading figures:

The fetus could not be taken seriously as long as he remained a medical recluse in an opaque womb; and it was not until the last half of this century that the prying eye of the ultrasonogram rendered the once opaque womb transparent, stripping the veil of mystery from the dark inner sanctum, and letting the light of scientific observation fall on the shy and secretive fetus. The sonographic voyeur, spying on the

unwary fetus, finds him or her a surprisingly active little creature, and not at all the passive parasite we had imagined.²⁵⁹

This quote is taken from an article in which the author is explicitly reflecting on the developments in his field. The exuberance of the metaphoric language may therefore be attributed to a deliberate effort on the author's part at 'fancy writing'.²⁶⁰ But when we turn our attention toward the more mundane types of scientific writing it becomes clear how the issues of visibility and access are explicitly put forward as underlying countless, very concrete choices and interventions. The following examples show that efforts toward permeating bodily boundaries and optimizing transparency determine choices as concrete as ways to suture surgical wounds and underlie curious measures like insufflating wombs.

The maternal abdomen is then closed. It is important to use a subcuticular maternal skin closure covered with a transparent dressing so that monitoring devices can be placed on the maternal abdomen postoperatively.²⁶¹

Endoscopic fetal surgery uses a telescopic lens and operating instruments that are passed through small "ports" in the uterus. A bubble of CO₂ is used to displace amniotic fluid and provides excellent visualization in a magnified field.²⁶²

For these reasons gas insufflation was used, as initial trials demonstrated excessive light scatter and distorted optics when visualizing through amniotic fluid. The air pocket creates a space in which surgical manipulation can easily be performed by displacing the uterine wall away from the fetus and allows for the effective use of cautery.²⁶³

A transparent wound dressing is applied so that skin remains permeable for ultrasound waves; holes ("ports") are made in uterine walls for telescopes and other instruments to pass; amniotic fluid is displaced by gas insufflation because of its "distorting" optic qualities.

In addition to the externalization of internal phenomena through graphic visual representation and the entering of bodies with means to visualize insides, the transparency of the female body is accomplished through other kinds of medical actions as well. Activities and interventions subsumed under categories like monitoring, surveillance, and data gathering have, in a more Foucauldian sense, similar effects. In the unrelenting search for knowledge about the body and its changing conditions, these activities make the body yield information about many aspects of its functioning. In IVF, there is constant monitoring of follicle development; hormone levels are measured to detect imminent ovulation and time ovum aspiration; the state

CHAPTER 5

ONLY ANGELS CAN DO WITHOUT SKIN.³²⁵

A Note on the Politics of Theorizing the Body

1. INTRODUCTION

This book began with the identification of a paradox contained in contemporary technological configurations regarding reproduction. Although the rapid growth of reproductive technology and the improvement of women's position in society are both considered important and valuable achievements, one cannot escape noticing that the relation between the two developments is fraught with tension. Whereas women have acquired the freedom to explore their own interests and goals, instead of solely serving the interests of husbands and children, the development of contemporary reproductive technologies signals a movement in the opposite direction. In recent years, IVF treatment of women has been adapted so as to accommodate the problem of male infertility. In increasing numbers, fertile women are now taking the burden of relatively inefficient and complication ridden manipulations of their bodies onto themselves in an attempt to overcome the infertility of their male partners. Similarly, the medical care surrounding pregnancy has become increasingly intensive and invasive, a development exemplified in extremis by experimental fetal surgery. In both cases procedures are performed on women's bodies that are explicitly acknowledged as burdening and sometimes damaging to their own physical well-being and health.

It is nevertheless an undeniable fact that many women opt for these technologies. Since women are today considered as individuals quite capable to determine what they want and need, questioning this new technology can quite easily be taken as a disrespect for their choices or - in somewhat old-fashioned language - as an imputation of false consciousness. The extent to which women have been emancipated appears to diminish the possibilities for critique. It would be easy to oppose current technological developments, if women were pressured and forced to accept having medical treatments on

behalf of their children and male partners. While such pressures can be identified to exist (and be anticipated to become worse) in the case of prenatal therapy, they are much more difficult to establish for infertility treatments. Moreover, even if some women will be pressured, others are - and will be - explicitly asking for the technologies. Cases in which women went to court to claim the right to have fertility treatments, for instance, have on occasion reached the frontpages.

But the fact that there are women who want and use these technologies is not a strong argument against critical assessment of the technology from a feminist angle. A simple analogy shows how this argument is based on a superficial form of reasoning. For many years, marriage vows in most Western countries included the promise of obedience on the part of the wife. This did not stop millions of women to marry anyway, whether they actually believed that they ought to obey their husbands or not. The fact that so many women did marry, in turn, did not stop many married and unmarried women - even many men - to object to this legal constitution of marital relations. It has not proven necessary for the last woman on earth to refuse to marry under such laws before a good case could be made that they ought to be changed - and so they were.

This book has proceeded from similar assumptions regarding new reproductive technologies. The fact that many women use the technology, and will continue to do so, does not exempt it from criticism. The analogy with marriage laws extends to the way I analyzed technological discourse as constituting specific forms of relations - between male and female partners, between pregnant women and unborn children - the same way marriage laws constitute legal relations between husbands and wives. This way, it became possible to analyze the technology without addressing the issue of what exactly motivates the women participating in these technological practices. Reproductive technologies are clinical practices that may mean different things to different women. They are also discursive practices amenable to an analysis of the forms of relations they constitute and the forms of embodiment they yield. They constitute forms of relations through the redefinition of bodies that occurs with the transformation of the problems adressed by the technologies.

In the previous chapters I identified the specific forms of relations and embodiment engendered by and within the technological practices of IVF and fetal surgery. The conclusion to be derived from these analyses is that the paradox is not a paradox but indeed a genuine contradiction. The technologies offer forms of female embodiment that constitute specific relations for women vis-à-vis men and children that go against the struggle for and partial achievement of women's individuality. Feminism has been precisely about

the effort to establish that women are individual persons in their own right - *not* just spouses and mothers. By contrast, reproductive technologies, and the biologies or body ontologies they generate, show female bodies configured not as individual women's bodies, but as "prosthetic devices" instrumental in the medical care for other bodies that, in the same movement, are construed as self-realizing individual entities. The construction of couples and fetuses as patients enables the (re-)establishment of men and children as self-contained and self-realizing individuals. It makes possible the construction of infertile men as individuals still realizing their own potential to reproduce, and it yields the construction of fetuses as young children already individuated and developing independently from women's bodily activity.

The contradiction comes into relief even sharper, if one remembers how, precisely in the context of reproductive and sexual politics, emancipatory efforts have focused on the issue of the individuality of the female body in order to establish the right to bodily self-determination. The introduction of the notion that female bodies do have boundaries beyond which the pursuit of neither men's nor children's interests is legitimate, has been crucial. The analyses presented in this book show how reproductive technologies work by, once again, shifting, moving, and dissolving precisely these boundaries, in order to accommodate men's and children's medical needs.

Having arrived at the conclusion, the original problem of the relation between reproductive technology and feminism recurs in a different guise. I shifted the formulation of the problem away from the level of technologies on offer in clinical practices and women's choices whether or not to use them, to the level of the analysis of technology as discursive practice. However, the problem now presents itself in relation to contemporary feminist theory. I formulated my conclusions in terms of lacking individuality and recognizable female body boundaries, whereas feminist theory has been working hard to deconstruct the very ideals of individuality and autonomy. Feminism has been arguing for some years now that neither the body nor the self are to be conceived of as entities endowed with natural, fixed boundaries. It may appear that reproductive technologies merely seem to turn into material practice what feminism has been arguing for on a theoretical level. Therefore, it may still not be clear how technology poses a problem for feminism.

In this final part of the book I address these issues concerning postmodern feminist theory and the relation between technology, politics, and bodies. First, I briefly address the way feminist critique of new reproductive technologies often echoes and coincides with more general critiques of modernity. Then I describe how the feminist response to these critiques has been a call for a "move beyond" modernity, exemplified in the postmodernist

notions of 'cyborgs' and 'hybrids'. Next, I argue how a conception of postmodernism as successor to modernity, or even as solution to modernity's aporias is misguided and unhelpful. Drawing on the work of Donna Haraway and Bruno Latour, amongst others, I propose a view of technologies and bodies that acknowledges modernist ideals to be both contingent *and* indispensable, even for postmodern feminists.

2. TECHNOLOGY CRITIQUE AS MODERNITY CRITIQUE

The medical-technological rendering of women as "less" than individuals is not unique to contemporary technologies. This pattern, encountered here on the level of technologically produced body ontologies is strikingly similar to broader, historical patterns within modernity. There is by now a wealth of analytical work showing how the modernist and humanist ideals of individuals realizing their own potential, free from interference in their private spheres, and certainly free from violations of their bodies' integrity have not only excluded women, but how they were sometimes even conditional upon the conceptual and material denial of the same ideals for women.³²⁶

These cultural patterns are identifiable on the philosophical level, as for example has been done for modern political theories and concepts found in Hobbes³²⁷, Rousseau³²⁸, most versions of liberalism³²⁹ and marxism³³⁰ alike, up to contemporary theories and definitions concerning the development of the moral self³³¹ or the psychological ego.³³² Abstract as this may sound, the patterns are visible in very concrete historical practices as well. On critical examination the modern, humanist conceptions about autonomous individual subjects turned out to be thoroughly gendered. A pattern was revealed in which the possibility of *some* to be (construed as) autonomous and self-realizing individual citizens with rights and possibilities to act in a public sphere, in free 'possession' of their own mind and body, turned out to be conditional upon a concealed dependence on the existence and work of many non-free, non-autonomous (not only) female "non-individuals." The latter remained locked in the private sphere without access to education or public functions and denied the right or capacity to act autonomously regarding their own life, mind and body, while enabling and sustaining those very privileges for others. Rousseau's *Emile's* education for enlightened citizenship turned out to be conditional upon his having at his disposal a Sophie forever denied these goods.³³³ The status of men as breadwinners and heads-of-households - to take up a more concrete and historical instance of the pattern - in the Netherlands up into the late 1950s, was similarly conditional upon denying married women the legal competence to act, the right to hold a job in go-

vernment or civil service, and, until 1991, the right to refuse their husbands access to their bodies.

Moreover, it has been amply described how modern ethics and law have had a history of double standards when it came to women and reproductive issues³³⁴. While the integrity of the *human* body as a value or principle has been unquestionable, practically held sacred, women and their sexual and reproductive functioning have all too often been considered exceptions, and subjected to a different set of values, principles and practices. There are numerous instances in which the authority to disregard female body boundaries (to decide on interventions in their bodies for the sake of men's, children's or "general public" interests) was allocated to others than women themselves, specifically to husbands and public authorities. Next to this type of legal authority, the disciplinary powers of medicine, psychology and other social and life sciences and practices have similarly focused on female bodies in order to ensure healthy families, children, husbands, workers and social structures generally³³⁵.

For these reasons, feminism has felt forced to more or less discard the vocabularies of what can be loosely labeled modernism and humanism, including the concepts of the natural body and its boundaries, individuality, autonomy and bodily integrity. This position can be recognized as informing many of the feminist criticisms levelled at reproductive technologies. In particular, feminist analyses of technologies that led to the emergence of the fetus as an individual patient have consistently pointed at the role of modern individualism. Whether "abstract", "possessive" or "patriarchal", the dominance of an individualistic vocabulary in western cultures is blamed for the current trends emphasizing the individuality and separateness, and from that, the precedence of the fetus over pregnant women. Moreover, these very trends are taken as confirmation of feminist critiques of individualism as a modernist vocabulary inherently inimical to women. Far from invoking the individuality of women against constructions of fetal personhood, the very concept of individuality is thus discarded as suspicious. As Sarah Franklin, quoting Haraway, put it:

The very term 'individual', meaning one who cannot be divided, *can only represent the male*, as it is precisely the process of one individual becoming two which occurs through a woman's pregnancy. Pregnancy is precisely about one body becoming two, two bodies becoming one, the exact antithesis of in-dividuality. This is, claims Donna Haraway, "why women have had so much trouble counting as individuals in modern western discourses. Their personal, bounded individuality is compromised by their bodies' troubling talent for making other bodies, whose individuality can take precedence over their own."³³⁶