Preface

Advances in bioscience and biotechnology now enable parents to use in vitro fertilization to create embryos that might become their future children, and then to screen those embryos for a variety of genetically influenced diseases. Parents then can select only non-affected embryos for transfer to the womb. Other advances have enabled researchers to create "transgenic" nonhuman animals—animals genetically engineered for selected genetically influenced features—by incorporating genetic material into the developing embryos of these animals. Continuing advances might make it possible for future parents to create transgenic children—the product not only of screening but of genetic engineering for selected genetically influenced features.

As I contemplate the prospect of "designer babies" and follow the emerging debate, I worry more about how we decide than what we decide. I have confidence in our capacity as practical reasoners to solve ethical and public policy problems around the kitchen table and at the town hall. We have long experience and considerable expertise in solving these problems—they are as much a part of human life as gathering our daily bread and we would not have survived to ponder the prospect of genetic engineering if we were not skilled in both these practical arts. But just as we cannot put bread on the table without the necessary tools for the harvest, neither can we solve the ethical and policy problems posed by genetic engineering without suitable methods for addressing them.

I see the greatest threat to our problem-solving capacity in too-ready deference to and reliance on inapt methods drawn from the disciplines of philosophy, law, and policy. The powerful tools of welfare economics can be very helpful in addressing policy questions that elude our understanding in the absence of data gathering and analysis—about contributions to economic efficiency, for example. And establishing duties and rights can be very effective in preserving and enforcing the practical knowledge we have gained through historical experience of wrongful social conduct—as with treating individuals on the basis of membership in racial groups, for example. But it does not follow that a utilitarian calculus of welfare maximization or a deontological assessment of duties or rights is well-suited to parental or policy decision-making about revising the genomes of our future children.

As the problem of harvesting the field leads us to tools that suit, so the problems of parental and policy decision-making instruct us about apt methods for addressing them. The advent of genetic engineering poses what I call "fractious problems"—novel problems thrown off by advances in bioscientific knowledge and biotechnological know-how that are complex, ethically fraught, unavoidably of public concern, and unavoidably divisive given their ethically fraught nature. The features of these problems pack powerful challenges to our problem-solving capacity.

The primary challenge, I believe, arises in understanding these problems—gaining an epistemological grip on them. I observe, in the gathering debate, that we often disagree about their most basic contours and, in consequence, we argue past each other. This is unfortunate both in fostering an atmosphere of mutual incomprehension or worse and in disabling one of the most important benefits of life in community—the opportunity to engage multiple reasoners in the shared effort to solve practical problems.

While commentators generally argue that the fruitless and often acrimonious debates surrounding issues such as genetic engineering are due to irreconcilable disagreement about religious versus secular values or social versus scientific and technological values or both, I see the matter somewhat differently. These features of fractious problems evoke different and potentially incommensurate ways of understanding our lives as individuals and as members of society, but ways of understanding that are not necessarily irreconcilable. With the advent of the modern scientific and technological enterprise—its enormous success owing in large part to the power of its reductionist methods—most of us understand ourselves, in part, as Darwinian and molecular beings, reducible to our functional and material components, and see our practical choices as amenable to guidance through reduction to risks and benefits, rights and duties. Yet, we remain the holist beings who populate Platonic dialogues, religious texts, the plays of Shakespeare, and the literature of psychoanalysis. With the advent of the modern, pluralistic, democratic state—its enormous success owing in large part to the power of freedom and tolerance in enabling individual flourishing—we are all pluralists now, pursuing our diverse goals pursuant to our diverse commitments. Yet, we remain communitarian in our aspirations as social beings for shared commitments that bind us together.

I observe in the emerging debate surrounding genetic engineering a tendency for debaters to cleave to one pair or another of these ways of understanding the problems: reductionist pluralist versus holist communitarian. Apt methods for addressing these problems, I argue, will cross these divides and integrate these ways of understanding. If we are to understand the problems posed by genetic engineering, we must fully appreciate that we are evolved beings reducible to our genomes and other biological components and that we are also more than and different from that. We must not only respect but honor our pluralistic pursuit of diverse means and goals in procreation and parenting as in all else, and at the same time recognize that

not everything goes when it comes to practices that vitally affect future human beings and members of the political community.

I argue that, in the context of parental decision-making, an ethics of virtue is competent to integrate these diverse ways of understanding and that utilitarian and deontological approaches are not. In the context of policy-making, I sketch and argue for the merits of a "navigational approach" to decision-making as competent to the task, and I argue that other approaches are not. The reason why these methods are best suited to these problems brings us back to our capacity as practical decision-makers. A virtue-based approach to individual decision-making and a navigational approach to policy-making ask us to immerse ourselves in the problems in concrete, contextualized detail, resisting the allure of pruning the problems to fit decision-making principles that may appeal in the abstract but only "work" to the extent we blinker ourselves to the multi-dimensional complexity of the problems before us and these different ways of understanding them.

In individual decision-making about procreation and parenting, we have long experience in confronting practical problems in the rich and untidy detail in which they present themselves to us. We can and do find guidance, I argue, in age-old virtues that have guided decision-makers through these thickets in the past. In policy-making, a navigational approach best captures the methodological merits most perspicuous in common-law decision-making, in which judicial decision-makers navigate from past historical experience of problems with similar features to interim, tentative solutions that carry forward past wisdom tailored to the distinctive features of the problems before them. On a navigational approach, genetic-engineering policy-makers will immerse themselves in the concrete, contextualized details of parental decision-making about genetic engineering and look to our past historical experience of policy-making concerning problems with like features—problems that have arisen at the intersection of bioscience and biotechnology with the practices of procreation and parenting.

These questions about genetic engineering, what and how parents and policy-makers should choose, have asserted their own grip on me over the past several years—riveting my attention in a way that demanded that I attempt to address them. This book is my effort to do so. I wish to acknowledge the people who have contributed to bringing this project to fruition, while noting my ownership of its shortcomings.

I first became keenly interested in the ethical, legal, and policy consequences of the Human Genome Project then underway while on the faculty at Drake University Law School. I am especially grateful to Dean David Walker, who was most helpful in supporting and encouraging my scholarship in this area. While a visiting faculty member at the Notre Dame Law School, I had the good fortune to make the acquaintance of Professor John Robinson, now Executive Associate Dean of the Law School, whose knowledge and insight into issues at the intersection of philosophy and law stimulated and significantly influenced my study of and reflection on the

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