GENERAL ETHICS

Sinning against nature: the theory of background conditions

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Debates about the moral and political acceptability of particular sexual practices and new technologies often include appeals to a supposed imperative to follow nature. If nature is understood as the totality of all phenomena or as those things that are not artificial, there is little prospect of developing a successful argument to impugn interference with it or sinning against it. At the same time, there are serious difficulties with approaches that seek to identify "proper" human functioning. An alternative approach is to understand interference with nature as acting in a manner that threatens basic background conditions to human choice. Arguably, the theory of background conditions helps explain much of the hostility to practices and technologies that allegedly sin against nature. The theory does not, however, entail that appeals to nature are relevant or rational. Such appeals should be subjected to sceptical scrutiny. Indeed, the theory suggests that arguments against practices and technologies that can be seen as contrary to nature sometimes exercise a psychological attraction that is disproportional to their actual cogency.

human cloning) and genetic treatment—and beyond these to technologies that promise to increase human longevity or enhance human capacities. Accordingly, it is important to establish whether the argument from nature genuinely appeals to reason—and what implications it may have for morality and for future regulatory policy.

I will argue that appeals to the moral inviolability of nature are highly problematic, that they are plausibly understood as reflecting a widespread fear of human actions that are perceived as anomalous and that this fear should not be pandered to in the formulation of policy in a modern pluralist society. Indeed, we should be alert to arguments that gain an illegitimate emotional attraction from the prevalence of these sorts of fears.

WHAT IS NATURE?

Firstly, what is nature, this thing that we must not defy, interfere with or sin against? We can think of nature in various ways. However, once we clarify the concept, there seems to be no straightforward way to make a morally salient distinction between "the natural" and "the unnatural". Writing in the 18th century, David Hume² opposed nature (in various senses) to the miraculous, the rare and unusual, and the artificial. He pointed out the difficulties of basing concepts of virtue and morality on any of these. In the 19th century, John Stuart Mill³ produced a sophisticated analysis of the issue, in which he elaborated two conceptions of nature as follows:

1. Nature as the totality of all phenomena and their causal relationships, as investigated by science³
2. Nature as those things that are not artificial—that is, whatever is not produced by human agency or technology (pp 7–8).

All such conceptions of nature, or the natural, lead us into philosophical difficulties. Most importantly, if nature is understood in Mill's³ first sense (which is similar to Hume's) nothing we ever do is unnatural. We are part of nature, understood in this broad sense, and the same applies to all our actions, all sexual and reproductive practices, and every new technology that we can invent. By using this sense of the natural, we can find no useful distinction between natural and unnatural actions because every action is natural (pp 15–16).

On the other hand, if nature is understood in the second sense identified by Mill³ (Hume's third sense), almost every action that we ever

Policy debates about the acceptability of the acceptability of particular sexual practices or new technologies often include appeals to a supposed imperative to follow nature. It is claimed that we must not "defy" the natural order, "interfere" with it or "sin" against it. Such language is not used only by naive moralists and pontificating journalists. For example, Leon Kass's much discussed opposition to human reproductive cloning is thoroughly permeated by language that invokes the naturalness and supposed profundity of heterosexual difference. As Kass sees it, "Seeking to escape entirely from nature (in order to satisfy a natural desire or natural right to reproduce!) is self-contradictory in theory and self-alienating in practice."¹ Throughout his work there is an underlying assumption that we are beholden to a morally inviolable natural order of things.

If such appeals to nature are rationally persuasive, they have great potential to influence the ways in which we think about new forms of biomedical technology. It is a time of great change in this discipline, and many kinds of biomedical research and development may potentially stand condemned for sinning against nature. These range from embryonic sex selection to new reproductive techniques (including

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carry out is unnatural. Perhaps, exceptions could be made for some purely instinctive acts having no rational purpose (pp 19–20) or for the acts of someone in a pathological or drug-induced state of automatism. That is, there may be a sense in which any such actions can be taken out of the field of human agency. This, however, gives no guidance if we are interested in the moral acceptability of practices that people adopt willingly and of technologies that are the product of rationally directed research and development programmes. If unnaturalness is used as a criterion for moral wrongdoing, commitment to Mill's second sense of the natural will entail that almost everything we do is morally wrong. As with the first sense, no morally useful distinction can be made between natural and unnatural human actions.

As for the other sense identified by Hume, which equates nature with what is statistically usual, it seems plain, as pointed out by Hume² himself, that this cannot determine what is virtue or vice. Although moral sentiments are widespread, great virtue is as rare as great vice (pp 526–7).

In short, none of the conceptions of nature discussed by Hume or Mill can help us distinguish between practices and technologies that are morally acceptable and those that are not. Can this problem be overcome by ingenious refinement of one or the other conception of nature? Although I cannot locate the outer limits of human ingenuity, I see no reasonable prospect of modifying either definition in a morally useful way.

One approach may be as follows. We could seek to refine Mill's second sense of nature by replacing the word "or", in the definition above, with "and". At the same time, we could define "technology" rather narrowly, perhaps restricting it to tools and practices that rely on advanced science. But, these adjustments to the definition would have the effect that some acts commonly condemned as unnatural—homosexual practices, for example—would be reclassified as natural and therefore as morally acceptable.

That may not be a problem for anyone who considers homosexuality to be morally acceptable, but who wishes to condemn various technological practices that supposedly sin against nature. For example, this modified criterion may still be used to condemn the contraceptive pill and in vitro fertilisation (IVF). However, it obscures just what there is in common among the various practices and technologies that have thus far been condemned for their alleged unnaturalness. At the same time, it covers many things that are not usually criticised—at least not on the ground in question here—including computer technology, aviation, advanced building techniques and materials, and a vast range of medical treatments. This revision of Mill's second conception would clearly not be a useful criterion for moral acceptability. Nor do I see how any other simple and useful change can be made to one or other conception of nature discussed by Hume or Mill.

Perhaps, then, it is not surprising that contemporary moral philosophers often give short shrift to arguments about what is natural. For example, Singer⁴ notes that there is a sense in which it is natural for women to have children continually from puberty to menopause, but this does not mean that it is wrong to interfere with the process. For a utilitarian such as Singer, a knowledge of natural laws can help us assess the consequences of our actions, "but we do not have to assume that the natural way of doing something is incapable of improvement".⁴ Similarly, Pojman⁵ offers a list of artificial innovations—from medicine and eyeglasses to clothes, money, bicycles, cars, airplanes, houses, churches, and books—that he sees as generally good. Even if it is thought that these thinkers move too quickly, attacking straw men, the issues raised by Hume and Mill may explain their impatience. They show the considerable difficulties that

stand in the way of any theory that gives normative weight to a distinction between the natural and the unnatural.

"PROPER" HUMAN FUNCTIONING

Natural law theories that take a functional approach to human activities, bodily organs and biological processes may be thought to avoid the problems inherent in the conceptions of nature discussed by Hume and Mill. For example, no appeal needs to be made to those conceptions of nature if we can find an independent and plausible way to characterise certain activities as failing to include—or as somehow impairing or suppressing—the "proper" functions of relevant biological processes or organs of the body. Such theories have a long history in Catholic thought, and their doctrinal fruits are exemplified in the papal encyclical *Humanae vitae*,⁶ which deals with the moral acceptability of contraception. *Humanae vitae* condemns all acts of sexual intercourse that are accompanied by human actions (such as sterilisation or the use of contraceptives) deliberately intended to prevent the possibility of pregnancy. This condemnation is based on the claim that there is a moral inseparability, established by God, of the procreative and unitive functions of sexual intercourse. Any deliberate attempt to suppress the possibility of procreation in a sexual act is thus a sin against God's design.

However, it is not clear why we are morally obligated to act in accordance with a deity's design, unless it can be shown that acting as specified is independently a requirement of morality (ie, independently of the deity's purposes or commands). In any event, this must be proved if such a theory is to have any prospect of convincing non-believers or of being taken into account in the formulation of public policy. It is not obvious that there is any moral requirement, independent of claims about what God has designed and commanded, that, for example, we must never engage in sexual intercourse while deliberately suppressing our fertility. It will not do to argue that this behaviour would be unnatural in one of the senses identified by Hume and Mill, as such an argument would be vulnerable to the criticisms already discussed.

It may be suggested that a proper function of sexual intercourse is reproduction, or procreation, and so it is improper to suppress that function by deliberate human action. However, this argument fails unless the word "proper" already includes a moral judgement. To rely on a claim that reproduction is a proper function of sexual intercourse, in the sense that it is a function that is morally impermissible for us to suppress, is simply to assume what must be proved. Evolutionary biologists recognise a sense in which the biological process of sexual intercourse in human beings is, indeed, functional for our species, but the moral relevance of this is doubtful. Sexual intercourse and the human sexual organs are adaptations: during the process of the evolution of our species, they tended to contribute to the inclusive fitness of the organisms concerned. In many cases, the process of sexual intercourse continues to contribute to a person's inclusive fitness (and, as a side effect, to the continuation of the species). However, we are not morally required to act in ways that are fitness maximising. This would lead to absurdities, such as the conclusion that we must engage in sexual intercourse as often as possible when we are at our most fertile.

Once theological considerations are removed from the picture, it is more plausible that we should act in whatever ways are calculated to achieve our own conscious preferences, while paying regard to the interests and preferences of other sentient beings. If it is claimed that our flourishing as people—something we presumably prefer—will be advanced by always acting in ways that are biologically functional, or fitness maximising for our species, this is just false. For

example, many families flourish despite the fact that the parents used contraception to influence the number and timing of their children. Indeed, many people lead flourishing lives despite being sexually active and “childless by choice”.

For reasons such as these, there are serious difficulties for any theory that explains “the natural” in terms of proper human functioning.

THE THEORY OF BACKGROUND CONDITIONS

A quite different approach was developed by Norman⁷ in 1996 in an article entitled “Interfering with nature”. This approach has since been elaborated and applied by Holland,⁸ who is more sympathetic than Norman to arguments from nature. Norman’s original article does not seek to impugn any particular practice. Indeed, it actually defends one practice: the use of IVF as a means of assisted reproduction. However, Norman develops an understanding of the natural that can be put to use by thinkers who oppose certain current or proposed biomedical technologies.

Norman⁷ begins by pointing out some of the difficulties with the idea of defying nature, following an approach similar to Mill’s. He then makes three main points that are essential for his redefinition of what interference with nature amounts to (pp 3–6). Firstly, our choices of actions, projects, life plans, and so on are always made against a background in which some things are believed not to be open to choice. These “background conditions” will vary, but they typically include general facts about sex, procreation, nurturing, maturing and ageing, intergenerational relationships, death, the necessity of work and the existence of illness and pain in our world. These are eternal verities of human experience, or so it may be thought. Human cultures develop their particular understandings of the background conditions to human choice, which are then categorised as the realm of nature.

Secondly, this understanding of the natural causes various paradoxical threshold effects. For example, the fact that the world contains illness and pain is a background condition to our choices to attempt to avoid them, or ameliorate them, in any particular case. However, Norman says, we do not wish for illness and pain to disappear from the world entirely. If we no longer had to fight against them, much of what is valuable in our lives would likewise disappear. For example, we would no longer need doctors and medical science. We would no longer guard our children’s health, or our own. So many important practices would be lost that our lives would lose shape, depth and significance.

Thirdly, with regard to threshold effects, the risk is not that some specific harm will be done. Rather, the threatened elimination of basic conditions from the background of our lives creates the spectre of a loss of experienced meaning. For example, there is a sense in which the continued presence of illness and pain as factors in human life is needed for our lives to continue to have meaning.

Norman⁷ suggests that the background conditions are very broad and general: not just any innovation will threaten people’s sense of experienced meaning in their lives. Moreover, different cultures will understand the background conditions of human life in different ways. Some of the background conditions understood in particular cultures may not be eternal verities, although they appear to be so from within the culture. For example, many cultures have false beliefs about the inferiority of women among their most basic background “knowledge” (pp 6–7).

At the same time, Norman⁷ suggests, it is a psychological fact about human beings that we need a rather rich conception of the background conditions to our lives (p 7). Furthermore, what are seen in a particular culture as the

basic background conditions is not entirely an arbitrary matter: the perceived background conditions are shaped not only by culture but also by our evolved biology and the physical world that we all live in. Thus, we can expect a great deal of intercultural agreement about the background conditions to human choice (p 7).

Norman⁷ argues that the discomfort that some people feel about IVF and futuristic prospects such as that of biological immortality comes from a sense that important background conditions to choice—relating to procreation and death—are threatened. In this context, a “threat” to the background conditions seems to mean that certain conditions may no longer pertain. A sense that some background conditions are under threat can be expressed as a claim that nature is being interfered with. When such claims are made, nature is being equated with the background conditions recognised within the culture concerned (pp 7–11). Norman, however, defends IVF on the basis that incremental changes to our own culture’s background conditions can be absorbed into our thinking. Such changes do not constitute “taking an axe to the natural order”, as alleged by one conservative commentator whom Norman discusses (p 10).

This theory has considerable explanatory power. It explains why certain technological innovations, but not others, are widely experienced as threatening. It also explains what these innovations have in common with such practices as homosexuality, which are not products of high technology but are also often impugned as being unnatural in a morally impermissible sense. According to Norman’s approach, anything that may threaten a culture’s basic assumptions about how ordinary human life works—especially assumptions about sex and its relationship with conception and birth, the development and rearing of children, the roles of men and women, the processes of ageing and death—is likely to be disquieting to at least some people. For example, homosexual practices may seem to threaten a background condition that relates to sex and procreation. If there are recognised choices that include sexual acts with no possibility of pregnancy, then one of the background conditions has been lost.

Norman has provided what seems to be a plausible theory of why similar kinds of widespread psychological disquiet are produced by the contemplation of otherwise varied practices and technologies, such as homosexuality, contraception and IVF, and (more futuristically) reproductive cloning, genetic enhancement and radical life extension. The theory also explains why the seemingly irrational idea of sinning against nature persists in debates on morality and public policy. It is also worth noting that the theory predicts at least some resistance to any new technology that seems to threaten the background conditions, even if the change offers some people utilitarian benefits, as with IVF. This is a strength of the theory, as the prediction is consistent with historical experience.

Moral thinkers who have invoked concepts of sinning against nature have not normally expressed themselves in ways that are similar to Norman’s description of a threat to background conditions. This, however, is not surprising, as Norman seeks to explain what it is that makes people fearful of certain practices and technologies. He is not attempting to explicate actual arguments that have been put in the past. His theory may imply that such arguments are often a rationalisation of fears that are not properly understood by those who have them.

At the same time, some thinkers have developed arguments against certain technologies based on the claim that their availability would threaten the experience of meaning in our lives. The clearest example of this may be McKibben’s⁹ recent book, *Enough: genetic engineering and the end of human nature*, which argues against the development and use of

some radical kinds of technology that could change what he sees as fundamental aspects of ourselves (or our children). These aspects include our vulnerability to ageing and death and our genetic potential for only limited levels of physical and cognitive ability. Attempts to “improve” ourselves by altering these fundamentals, as McKibben⁹ sees them, would remove limitations that provide a necessary context for the experience of meaningful human choice. This concern is very close to the kind of fear that Norman believes we often feel, even if we are unable to articulate it.

In short, the theory of background conditions seems to be a valuable contribution to our understanding of human nature. It explains how certain ideas about the inviolability of nature persist in modern societies, although they are difficult to formulate and seem to have great intellectual difficulties.

HOLLAND'S CONTRIBUTION

More recently, Stephen Holland⁸ has defended appeals to the inviolability of nature. Holland emphasises the point that background conditions to choice are culturally specific constructs based on natural facts (p 155). For Holland, an appeal to nature is a way of expressing hostility when a culture's understandings of the background conditions to choice come under threat. Somewhat surprisingly, Holland believes that such expressions of hostility are relevant and rational, as they provide a way of defending conditions that are necessary for human beings in the culture to achieve an experience of meaning in their lives (pp 155, 167–71). Accordingly, he argues that Norman is too ready to conclude that appeals to nature are unjustified, although advanced reproductive technologies such as IVF have undoubted utilitarian value (p 170).

One kind of threat to the background conditions understood in our culture, as in many others, is the interference with what Holland⁸ calls “the natural connection between sex and procreation” (p 157). Holland does not advance the kind of natural law argument found in *Humanae vitae*, but no one, he suggests, would want the emergence of a far-future society in which “all fertilization takes place without sex” (p 167). Similarly, he explains the widespread unease about genetic enhancement by saying that it threatens our understanding of “natural and unnatural ways of promoting traits” (p 157). More particularly, it threatens background conditions relating to choices and achievement in parenting: there are certain natural limits to what can be done to ensure the talents and other endowments of our children. Accordingly, we feel threatened by the prospect that too much of a technological guarantee would make parental nurturing seem meaningless (pp 186–8). Similarly, human reproductive cloning is psychologically threatening for a combination of reasons. It combines the separation of sex from procreation with technological control of children's endowments (p 157).

Holland⁸ concedes that not all threats to background conditions will be perceived in the society concerned as morally unacceptable—at least not for long. Where we can see a sufficiently significant utilitarian need for some new technology, we are likely to accept it, even if we have initial doubts. We are unlikely to oppose a particular technology where to do so seems cruel or heartless, where the practices it enables seem relatively trivial (as with tooth fillings) or once the technology becomes familiar to us. In cases in which the technology becomes familiar, the fact of its availability is absorbed into our thinking and our understanding of the background conditions is adjusted (pp 169–70).

I have already commented on the explanatory power of the theory of background conditions as initially proposed by Norman. Holland's further elaboration has additional explanatory power. Consider the widespread opposition to homosexual acts that has existed in many human societies. This

can be interpreted, at least partly, as the manifestation of psychological disquiet when a practice is perceived as threatening the relationship between sex and procreation. The persistence of a seemingly irrational hostility towards homosexuality may be explicable when the following points are considered. Firstly, many conservative heterosexuals may find it difficult to see much utilitarian value in homosexual acts, as they may be unable to imagine how such acts can be genuinely pleasurable or how there can be anything unsatisfactory about the pleasures of heterosexual love. Secondly, for similar reasons, these conservative heterosexuals may find it difficult to understand the cruelty of moral norms or criminal laws that forbid homosexual acts. Thirdly, questions of who has sex with whom do not seem trivial; they have been troubling and fascinating in all human cultures for many thousands of years. Finally, although homosexual acts among human beings are doubtless as old as our species, they are still unfamiliar and confronting to many people.

Holland's elaboration of the background conditions theory does a good explanatory job in this case, and his discussions of attitudes to a range of reproductive technologies strike me as rich and plausible. This creates an impression that he, like Norman, has made a useful contribution to our knowledge of human nature. In particular, he has offered a valuable indicative account of the varied circumstances in which there may be greater or lesser hostility to practices or technologies that appear to threaten a culture's understanding of the background conditions against which human choices are made.

RELEVANT AND RATIONAL?

Should we accept Holland's claim that objections to the supposedly unnatural character of certain practices and technologies are actually relevant and rational? In my view, Holland is far too indulgent towards what are plainly illiberal reactions. Indeed, the theory of background conditions gives us reason to be more suspicious of arguments against the acceptance of new technologies, as it suggests that an apparently rational gloss is being put on essentially irrational fears. Putting the matter another way, the theory offers an explanation of why the opposition to new biomedical technologies is permeated by a “yuck factor” not unlike the irrational repugnance that is often elicited by homosexuality.

Imagine an opponent of homosexual acts, contraception, IVF and reproductive cloning who has read the works of Norman and Holland. We will call her “Leonora”. Leonora objects to all these practices, and she advocates their legal prohibition on the moral ground that they are sins against nature. When challenged, she explains that what she really wants is to protect the tight connection between sex and procreation, which she describes as a background condition to her life without which her own reproductive choices would no longer seem meaningful. “As I wish to protect a background condition without which my life will lose meaning,” she adds, “my reaction is perfectly rational. It is also relevant in the sense that it should be given weight in the formulation of regulatory policy.”

In fact, it is difficult to imagine that anyone would ever argue in precisely this manner; McKibben perhaps comes closest, but he is concerned only with dramatic technological changes. Such an argument seems to be obviously and thoroughly wrongheaded, although it is difficult to explain exactly why. Part of the difficulty is that Leonora makes a point that seems to have some force: given the way she is psychologically constituted, she may, indeed, suffer genuine distress from the knowledge that homosexual practices, IVF, sex with contraception and reproductive cloning are prevalent in her society, even behind closed doors. Given that

she has such emotional reactions to all these practices, it is perhaps prudent of her to oppose them and to seek their prohibition. In that limited sense, her hostility is rational. That does not mean, however, that her reactions are rationally justified, or that they provide us with a good moral reason to oppose whatever practices cause her disquiet, or that the presence of such reactions in some people is a harm that should be taken into account by legislators. It does not even entail that Leonora will consider her life to be meaningless if homosexuality, IVF, and so on are permitted by law—human beings are surely more flexible and resilient than that.

One obvious response that can be given to Leonora would begin by pointing out that anyone putting up such an argument must already be well aware that the link between sex and procreation does not hold in all cases. It is simply that some sexual acts cannot cause pregnancy and that some pregnancies can, indeed, be brought about without sexual intercourse, by using various methods of technological intervention. It seems that Leonora wants the world to be a way that she knows it is not, and claims that her own life would lack meaning unless this could happen. Surely this is a kind of irrationalism.

Furthermore, not all background conditions are similar in their demands. For example, if it is a background condition to many social institutions and activities that there is some illness and pain in the world, then the sudden abolition of illness and pain may, indeed, be something that we would be psychologically unprepared for (although such an achievement may well justify the psychological jolt). No foreseeable medical advance, however, seems likely to threaten a background condition of that kind. If it ever happened, it would surely be in a future society very different from our own, with people whose psychological preparedness may be quite different from ours. By contrast, Leonora is insisting that all sexual acts must be potentially procreative and that all human reproduction should be the result of acts of vaginal intercourse.

It is, perhaps, not difficult to understand how a person who is strongly impressed by the sex–procreation link may find something troublingly anomalous about non-procreative sexual acts or the use of reproductive technologies that enable children to be born without acts of vaginal intercourse. But the existence of any number of such anomalous acts in her society will not prevent Leonora from enjoying as much “normal” sex as she wishes. Nor does it prevent her from having children and enjoying all the activities associated with raising a family. It is difficult to see how Leonora is being morally wronged. By contrast, if her views prevailed, many people would be prevented from living as they please, shaping their lives by making their own choices about very personal and important matters. If public policy deferred to Leonora’s fears, this would severely restrict the autonomy of many other people.

Most fundamentally, in a modern pluralistic society, public policy is based on the idea of mutual tolerance. In such a society, weight cannot be given to the psychological reactions of people who fear that they will be unable to lead a meaningful life side by side with certain others. It is not sufficient for someone like Leonora to claim that someone else’s actions, while causing her no overt harm, are inconsistent with the way she would like the world’s background conditions to be. If we are all to flourish together in the same society, she and others ought to be adaptable to the true (and, thanks to technology, ever-changing) conditions of the world. Leonora’s position, as described here, seems to be both morally unconvincing and contrary to the policy approaches that are pragmatically required in a pluralistic society.

DISTORTIONS

When Holland⁸ discusses the theoretical possibility of modifying our children’s DNA in an effort to enhance their abilities and life prospects, he inadvertently displays how easily disquiet about background conditions can translate into distorted thinking on morality and policy. He provides a detailed discussion of the ethics of genetic enhancement, showing that several arguments can be offered in opposition to enhancement for, say, cognitive abilities. Some of these arguments are consequentialist in character, whereas others suggest that genetic enhancement would be morally wrong in principle (pp 184–5). Holland concludes that the most powerful arguments tend to be consequentialist, whereas the arguments of principle are relatively weak (p 185).

At this point, Holland⁸ identifies what strikes him as a puzzle. Even if all the consequences were good, and even though the arguments in principle are so weak, “we would,” he says, “continue to find the very idea of genetically altering our children for desirable traits such as intelligence and musicality, at least morally distasteful, and even morally impermissible” (p 185). He suggests that this is because genetic enhancement threatens a background condition for choice: that the endowments of our children should be, to some extent, out of control and experienced as “given” rather than chosen (pp 187–9).

I am not at all sure that I would find the idea of genetic enhancement troubling in the absence of adverse social consequences, and I take issue with Holland’s repeated assertions of how “we” feel about these matters (or what “no one” wishes to see). Even if “we” refers to an electoral majority, it certainly does not encompass all peaceful and honest citizens of modern societies. That aside, Holland’s own analysis suggests that the opposition to genetic enhancement in principle may not be motivated by the reasons that are usually proffered in public debate. Holland himself finds those reasons weak, while continuing to oppose genetic enhancement in principle. Clearly, there is a risk here that policy decisions may end up being made on the basis of reasons that are little more than rationalisations of an underlying opposition to changes that some people find psychologically disquieting.

For the foreseeable future, any capacity that we may have to enhance the abilities and prospects of our children by manipulating their DNA will undoubtedly have severe limits, much like our capacity to manipulate our children’s environments for the same purpose. Even if we are not psychologically prepared to live in a world in which the endowments of our children are totally under our control, there is no prospect that we will soon experience such a world. This, of course, is also an example of the problem faced by McKibben’s reliance on arguments about the loss of meaning. Although it may seem, before the development of a new technology, that the sense of meaning in our lives is under threat, we do adapt, and new social practices incorporate the new technology. Once again, Holland has done us a service by identifying what the underlying fear may be, but not by suggesting that it should be deferred to in any way in the development of our society’s moral norms or regulatory policies.

CONCLUSION

This analysis suggests that it is considerably difficult to construct a sound moral or policy argument against any practice or technology on the grounds that it sins against the natural order. Indeed, such reactions to a practice or technology should be examined with scepticism, as the theory of background conditions suggests that it is all too likely that some people will sense that basic conditions of their world are being changed in a disorienting way. They

may have an underlying (although probably unjustified) fear that their lives will no longer seem meaningful in a world in which such practices or technologies are allowed.

Furthermore, the theory of background conditions gives us a reason to adopt an attitude of sceptical scrutiny to the arguments against a particular practice or technology if even one of the arguments takes the form of an appeal to nature. Of course, the real strength of any truly compelling argument cannot be removed merely because a bad argument is also run by opponents of the practice or technology. However, the presence of that particular argument as one element in public debate should alert us that the psychological basis of the “yuck factor” may be affecting at least some people’s thinking. Opponents of the practice or technology are, probably, to an extent, searching for ways to rationalise what is fundamentally no more than psychological aversion to conduct that seems anomalous within their contestable views of the world. In such circumstances, this aversion will possibly influence some legislators and members of the public.

Accordingly, when appeals to an inviolable natural order are in the mix of arguments pressed against a particular practice or technology, we have reason to respond warily. All arguments should be considered on their merits. However, we should be alert to the possibility that the negative case

will gain emotional strength from its parasitism on widespread aversion to anything anomalous or strange. The psychological attraction of the negative case may be out of proportion to the genuine cogency of the arguments. In those circumstances, we have reason for heightened scepticism as we consider the overall case against any biomedical innovation.

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