NUFFIELD COUNCIL ON BIOETHICS

BACKGROUND PAPER

Naturalness and unnaturalness in contemporary bioethics: Preliminary background paper

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Note
The author was commissioned by the Nuffield Council on Bioethics to write this paper in order to inform the Council's discussions about possible future work on this topic. The paper is intended to provide an overview of key clinical, ethical, social, legal and policy issues, but is not intended to offer any conclusions or recommendations regarding future policy and practice. Any views expressed in the paper are the author's own and not those of the Nuffield Council on Bioethics.

This preliminary background paper was commissioned by the Nuffield Council on Bioethics to help the Council plan its work on the concept of naturalness in bioethics debates.

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Introduction

"When we seek to understand the world of nature, we do so at least partly in the hope that this will enable us to live within it more comfortably."[1]

Bioethics is often concerned with novel processes and entities. IVF, genetic modification of crops and animals, reproductive cloning and xenotransplantation are examples of the actualities and possibilities with which bioethics must grapple. These developments give human beings the possibility of changing things that were previously beyond their control. Accordingly it might seem that it is precisely the 'unnatural' that generates the *need* for bioethical enquiry. It is paradoxical that despite this, bioethics is so polarised with respect to the moral significance of the natural. The birth of Dolly the cloned sheep is a good illustration

of this. Dolly's cloning was hailed variously as a benign breakthrough of modern science,[2] and an assault on nature.[3]

Many influential bioethicists who regard themselves as quintessentially rational thinkers repudiate any suggestion that 'naturalness' can or should play a part in moral evaluations. Others hold that nature is an important consideration in moral deliberation. The motives for the use of, or avoidance of, appeals to nature in bioethical reasoning, are coloured by an array of disciplinary, territorial, religious and political convictions. Without understanding this, it is not possible to make sense of the context in which the moral role of the natural is being explored.

This report explores the ways in which concepts of the (un)natural feature in contemporary bioethical reasoning. It sets out the bioethical issues which tend to generate most explicit discussion about the role of nature, and shows the ways in which the concept of nature feeds implicitly into other aspects of bioethical discourse. It considers the ways in which the use of, or repudiation of, concepts of nature, are associated with specific epistemological or value-based standpoints. The report also considers how nature features in moral arguments and concerns raised in the media.

There is controversy about what constitutes bioethical methodology.[4] Nevertheless, it is generally agreed that bioethics is an interdisciplinary field that can allow for a variety of academic approaches.[5] Because of this, people from many different academic and professional backgrounds may contribute to the bioethics literature. This is partly what makes bioethics such a rich endeavour. However, it has drawbacks too. Bioethicists, even when speaking to each other, cannot always assume an in-depth knowledge of any particular academic field on the part of their audience. They must therefore avoid jargon, and complex arguments or references to arcane sources, theories or concepts. In some instances, however, grappling with deep philosophical problems is an inescapable part of the project of bioethics. This is especially true of an analysis of the role of nature in bioethics: every line of enquiry leads to complex and sometimes bitter disputes, whose roots are entrenched in epistemological, theological and metaphysical problems. (Not to mention scientific, legal and sociological…!)

Meta-ethical and methodological considerations

Nature appears in bioethics in a number of guises and contexts. At the most basic level, people may feel that it is morally wrong to alter, distort or subvert natural processes. Leon Kass, for example, argues that an intuitive recoiling from interventions such as cloning that distort or fragment the natural processes of reproduction, is a powerful indicator that such interventions are unethical.[3] These are perhaps the most obvious occasions when nature plays an explicit role in informing moral reasoning in bioethics. However, there are many other ways in which nature colours the concepts and themes employed in bioethical deliberation. For example, bioethicists may be concerned with the natural world, or nature, especially in terms of our moral responsibility to the environment. Nature also plays a part in determining the ways in which bioethicists believe society should be constructed and in which legislation should function. Ideas of what is natural for individual humans, for families, and for states

often play into arguments about disease, healthcare, and our moral rights and responsibilities towards one another.

The role of nature in bioethical deliberation cannot be understood without considering the wider philosophical debates about how if at all nature can inform ethical analysis. These meta-ethical questions about the relationship between morality and nature are particularly pressing for bioethics, given the subject matter of bioethical enquiry. Moral beliefs vary widely even within cultures, and they change over time. It has been suggested that a fear of moral relativism may impel bioethicists to seek absolute and universal moral principles.[6] The Four Principles approach to bioethics says nothing in particular about nature, though it purports to offer a universally acceptable approach to the analysis and resolution of bioethical problems, which could at some level be construed to imply a concept of an inbuilt (natural?) set of values held by all human beings. However, the four principles approach has been criticised on the grounds that it results in an over-focus on individualistic and atomistic approaches at the expense of considering social implications, inequalities and funding issues.[7]

Consequentialists too have to grapple with questions of objectivity and external truth, since even if they agree that the task of morality is to maximise the good, there is still the problem of ascertaining what IS the good – and whether there is any objective or natural answer to this. Another way of seeking objective moral truth is through natural law theory - which explicitly endorses the idea that morality is immutable, and discoverable and can be found through contemplation and reasoning.[8,9] Natural law theory is also often associated with natural rights, which on some views are also deemed to be discoverable and objective (rather than constructs negotiated by human beings). The Catholic Church adopts a natural law approach to bioethics, deeming that it can offer a 'complementary relationship of faith and reason'.[10] Most of the bioethicists who apply natural law theory in their writings have religious affiliations.

The is/ought distinction and the naturalistic fallacy

> *"There is no great invention, from fire to flying, which has not been hailed as an insult to some god. But if every physical and chemical invention is a blasphemy, every biological invention is a perversion. There is hardly one which, on first being brought to the notice of an observer from any nation which had not previously heard of their existence, would not appear to him as indecent and unnatural."*[11]

Peter Singer and Deane Wells state categorically that "…there is no valid argument from 'unnatural' to 'wrong'.[12] Similar views can be found in the work of many bioethicists. A report on the ethics of grafting human brain tissue into primates (whose authors include a number of mainstream bioethicists[i]) asserts: "…stipulating that research is "unnatural" says nothing about its ethics."[25] Gregory Pence dismisses those who would argue that natural gestation is morally important because we evolved that way: "Unfortunately, authors who argue this way

i Tom Beauchamp, Hilary Bok, Andrew Siegel, Ruth Faden, among others.

usually commit (what I call) the *Evolved Implies Ought* fallacy which states that because human evolution to date involved practice X, therefore, practice X is moral."[13]

There are two ways in which this supposed fallacy can be understood. G.E. Moore's use of the term 'naturalistic fallacy' rests on the idea that terms such as 'good' or 'right' are not reducible to other properties.[14][ii] Hume's is/ought distinction[iii], on the other hand, refers to the habit of deriving a normative conclusion from a statement of fact. For example, even if it is a biological fact that human teeth have evolved to eat meat, it does not follow that it is morally acceptable for humans to kill and eat animals. In bioethics, both Hume's and Moore's points are often conflated into a single term: the 'naturalistic fallacy'.[15])

Wilson, Dietrich et al note that it is the Humean version that is usually referred to in evolutionary psychology as the 'naturalistic fallacy'[16] and the same is true of bioethics. That is, as R. De Vries and B. Gordijn note, it is popularly accepted in bioethics that to move from a statement of biological fact to a normative conclusion is fallacious.[15] It has been suggested, however, that those bioethicists who invoke the naturalistic fallacy may be interpreting it wrongly, and that it is only a *direct* move from biological fact to normative conclusion that is problematic. Laurence Landeweerd acknowledges that the is/ought distinction and the naturalistic fallacy certainly pose some serious problems for those who want to argue from nature. However, he suggests that "…this does not mean that there cannot be a relation between descriptive accounts of our nature and ethics. It simply means that these relations are difficult to construe as causally inferable."[17]

If one accepts Landeweerd's contention, not everyone who argues from nature in bioethics necessarily falls foul of the naturalistic fallacy. Provided that the aim is to show how the relation between nature and ethics can be construed and applied, rather than simply to move directly from is to ought, even the most critical of mainstream bioethicists might be able to find some common ground with those who argue from nature.

Religion and rationality

> *"We live on the other side of a religious age.[…] The central strength and weakness of the West is precisely that it believes in nothing".*[18]

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ii Not everyone agrees that this is a fallacy per se, including the author of this report.

iii "In every system of morality, which I have hitherto met with, I have always remark'd, that the author proceeds for some time in the ordinary way of reasoning, and establishes the being of a God, or makes observations concerning human affairs: when of a sudden I am supriz'd to find, that instead of the usual copulations of propositions, is, and is not, I meet with no propositions that is not connected with an ought, or an ought not. This change is imperceptible; but is, however, of the last consequences. For as this ought, or ought not, expresses some new relation or affirmation, 'tis necessary that it shou'd be observ'd and explain'd; and at the same time that a reason should be given, for what seems altogether inconceivable, how this new relation can be a deduction from others, which are entirely different from it" (Hume, [1740]1978, p. 469)

The widespread dismissal of arguments from nature means that those bioethicists who adopt a natural law approach, where the appeal to nature may be more nuanced, are marginalised and demonised, according to David Oderberg,[iv] in a piece whose bitterness and anger with 'mainstream bioethics' is evident from his choice of invective.[19] Newman is also critical of mainstream bioethics, and what he sees as its postmodern insistence on "…devaluing nature and natural distinctions". For Newman, religion is an asset to bioethics, as the religious perspective "…is less fearful of and therefore less deferential to science."[20]

The dichotomies discussed here are largely those that exist in the English speaking world, and in the Western analytical tradition. There are, of course other approaches to bioethics, though they might not be considered mainstream. Ryuchi Ida for example, espouses a bioconservative standpoint: "in Japan, we respect the view of 'As it stands' ... This attitude expresses respect for Nature and for the natural state of the baby... Ethical appeals to the human welfare or individual happiness to justify the use of science of technology may have intuitive force in the West, but may seem alien to a non-Western audience."[21]

As suggested, in the West, those who openly endorse the idea of values inherent in nature are often religious - and often pro-life advocates. Bioethics is deeply divided on this point; those whom Oderberg regards as the 'mainstream' may be dismissive or openly hostile to approaches that are perceived as lacking rigour or rationality. If Oderberg is correct that the most powerful players in bioethics set the agenda in ways that make it difficult to argue from nature, then it may be that some potential discussion of nature and its role in bioethics is stifled or discouraged at the outset, leaving only the bravest or most ardent to articulate the minority position.

The overall picture as it stands seems to be one in which mainstream bioethicists talk to each other, applying a variety of methodologies which do not openly argue from nature, and whose conclusions rarely if ever challenge certain accepted moral positions. It is significant to note that the three dismissals of variations of the naturalistic fallacy cited earlier do not ascribe these supposedly fallacious views to any specific individual; nor are they contextualised to any particular argument. The 'appeal to nature' is treated as a free-floating straw man.

This may explain the relative dearth of open debate on the role and relevance of nature in mainstream bioethical literature. This is worrying for the state of health of bioethics, since opportunities for cross fertilisation and enrichment of the academic bioethical debate are constrained, but perhaps of equal concern, the unwillingness of mainstream bioethicists to engage with arguments about naturalness may also result in a disconnect between bioethics and public moral discourse.

[iv] I would not classify Oderberg himself as a bioethicist, though he writes sometimes on bioethical themes. I include his views here partly because they are striking in their attack on bioethics, and because he makes explicit his affiliation with natural law reasoning. Oderberg singles out the most controversial bioethicists, perhaps unfairly; there are many other influential thinkers in bioethics whose outlook is not aligned with Savulescu, Singer or Harris.

The scope of 'nature' or 'the natural'

> *"These days, there are few notions more derided […] than "nature" and "the natural." The term is sometimes handled by bioethicists and policy analysts, but then only with rubber gloves"*[22].

Even if one believes that 'x is bad because it is unnatural' could be true, it would be necessary to define and agree what was meant by 'unnatural' before any use could be made of this approach to bioethical reasoning. The difficulty in defining exactly what we mean by nature is not a new phenomenon, though arguably, it becomes more challenging as human beings expand their spheres of agency to include space travel, virtual intelligence, genetic modification, and other endeavours that have become possible in the past hundred years or so. John Stuart Mill suggested that there are two ways of understanding nature. Firstly, as a collective name for everything which exists (in which case everything is natural) and secondly, as a name for everything which exists/occurs independently of human intervention.[23]

Mill's point shows that either way, the term 'nature' is not on the face of it very useful for normative purposes. Either it is devoid of content, since everything is natural, and therefore we can accept everything that human beings do. Or it cuts out too much, since it implies that building houses, or treating diabetes are unethical. Peter Singer and Deane Wells touch on this when they state '[t]here is no appropriate sense of "unnatural" in which respirators for premature babies are natural but ectogenesis[v] is unnatural.'[24]

Despite the reluctance of mainstream bioethicists to appeal directly to nature, it is possible to find implicit or covert appeals, assumptions and concepts in many instances. Indeed, it may be that one cannot escape this, since as discussed, assumptions about nature are already imbued in many of the moral theories and methods adopted by bioethicists. Moreover, many core concepts and themes relate at some level to ideas of nature. Some of these concepts and themes are outlined below.

Human nature

> *"We unanimously rejected ethical objections grounded on unnaturalness or crossing species boundaries."*[25]

Many strands of moral reasoning rely at some level on concepts of human nature. This is therefore a significant point of enquiry for anyone attempting to explore further the question of how nature and bioethics relate to one another. Virtue ethics is one of the clearest examples of a moral framework that seeks to derive answers to ethical questions through an examination of what it means to be human, and from this, what is good for humans. For

[v] The gestation of babies in artificial wombs

Aristotle, the morality of human behaviour cannot be separated from human nature. A good person will flourish, and flourishing is in itself a part of what it is to be good.[26]

Yet one of the difficulties for bioethics is precisely the question of what IS human nature. Marc Hauser argues that the underlying basics of morality are universal, not culturally dependent. He suggests that humans are in some senses hard-wired for morality: it is part of our essential nature, in the same way that language, or the capacity for language is - that is, the content is not entirely fixed, but the capability and some of the structure, is.[27] This might be thought to corroborate some aspects of the Aristotelian view of human nature as something fixed and immutable from which we can ascertain the requirements for our moral flourishing. But biomedical technology enables us to envisage ways in which we might change ourselves – perhaps in ways so fundamental that any connection between human nature and bioethics would be severed. It would then be up to us to determine what sort of creatures we want to be.

Ingmar Persson and Julian Savulescu embrace this possibility, arguing in favour of moral enhancement, by means of technological interventions, if this should ever become possible. For them, whatever the current state of human nature, there is no reason to stick with it, if we believe we can improve on it. For example, perhaps we could alter our genes to increase our capacities for altruism, empathy, or justice.[28] Interestingly, this is a point on which 'mainstream' bioethicists diverge; John Harris is strongly opposed to the prospect of moral enhancement, which he regards as incompatible with freedom – something which for him is a profoundly important part of human nature.[29] Harris specifies that we should be satisfied with the existing means we have for improving our moral behaviour: socialisation, education, etc., and here he strongly implies that there is a morally significant distinction between these 'natural' methods of moral enhancement, and the unnatural interventions proposed by Persson and Savulescu.

Nature and need, correction and enhancement

One of the challenges for bioethics is to distinguish between health and disease, between needs and desires, and between correction and enhancement. This is difficult when new medical procedures and technologies are being developed that blur previously existing boundaries and call previous assumptions into question. In all of these distinctions, concepts of nature play a role, though it is not usually explicit.

One field in which these distinctions appear is that of germline engineering (making genetic changes that would be inherited by future generations). Some bioethicists argue that this is permissible if the alterations are genuinely therapeutic, rather than for example making people taller or more attractive. Marc Lappe argues that the distinction between correction and enhancement is the key to establishing the appropriate use of medical technologies. "Only the first is squarely within the domain of orthodox medicine" he asserts.[30]

Another way of expressing the health/disease and correction/enhancement dichotomy is the concept of normal species function. Christopher Boorse is one of the most emphatic

proponents of this approach. For him, health is the absence of disease – and disease is defined by its negative impact on what is normally expected of a species.[31] On his view homosexuality is straightforwardly a disease; it would clearly be detrimental to species survival if all the species members were homosexual, therefore normal species function is heterosexuality. The appeal of this approach is that it takes disease and health to be empirically discoverable, and value free, avoiding the pitfalls of the naturalistic fallacy as discussed above.

As Ian Wilmut observes, however, '[n]ot everything that happens in nature can sensibly be seen as an adaptation that truly enhances survival. Nature is quirky.'[32] T.H. Engelhardt is also sceptical, pointing out that Boorse seems to think there is a single natural design for humans, that each individual 'should' match, while in fact the species may rely on a multitude of characteristics and variations, some of which we might characterise as defects or diseases but which in fact are beneficial to the species as a whole.[33] Engelhardt's argument is that any attempt to derive health/disease boundaries through appealing to nature will not work, unless one identifies the *goals* that are being pursued. Boorse takes the species to *have* a goal – but does not clearly specify what that is. But Engelhardt suggests that we cannot escape the value component of determining health via normal species function, since the very choice of a goal is value-laden. Engelhardt's analysis seems to embrace the blindness of natural selection, in just the way that Newman regards as being nihilistically postmodern.[34]

It may be that those who are most sceptical about natural distinctions between health and disease hold different moral commitments to the purpose of healthcare, and definition of need itself. Those who have a primarily consequentialist standpoint may not see value in the correction/enhancement distinction, and may deny that the concept of medical need has any special moral significance. If the underlying aim of medicine is to improve wellbeing, it is unimportant whether the person being treated is 'sick' or not. In stark contradiction to Boorse's view, the World Health Organisation defines health as "a state of complete physical, mental, and social well-being and *not merely the absence of disease or infirmity*".[35] The implies that one does not necessarily have to demonstrate a clinical pathology in order to have a claim for medical treatment. Therefore the reliance on natural or biological facts as a basis for determining need, or for distinguishing between correction and enhancement, is diminished.

Nature and reproduction

Arguments from nature are particularly prevalent in reproductive bioethics. In many cases, arguments presented for prioritising reproductive decisions and reproductive freedoms, emphasise explicitly or implicitly how natural the reproductive urge is.[36] A joint report published by the Human Genetics Advisory Committee and the HFEA states: "The wish for genetic offspring is a natural human aspiration...".[37] In the context of reproduction, the distinction between needs and desires is often debated – as discussed above - and references to nature can play a role in framing certain urges as needs rather than as mere desires. Reproduction also seems to be an area of exceptional emotional and political intensity. In this domain more than any other area of medicine, the concept of nature exerts a powerful influence on people's moral reactions.

One reason for people's unease about cloning was the fact that it was not perceived as a remedy for a recognised disease. Cloning was not associated particularly with the relief of infertility, but with the exercise of what is widely assumed to be a perverse and immoral desire to replicate oneself. Surveys of public responses to the possibility of reproductive cloning indicate that cloning is felt to be more acceptable if it is presented as an option for an infertile couple (as opposed to a fertile individual who simply wants to replicate him/herself).[38] That is, it was the perception of a technology as a solution to a medical problem which seems to facilitate its acceptance.

Similar arguments emerge in the context of postmenopausal motherhood. Some people regard the provision of fertility treatment to older women as 'unnatural', while exactly the same procedure offered to younger women is regarded as being acceptable. Hub Zwart makes an analogy between putting a steel pin in a broken bone, and the use of technology to facilitate postmenopausal motherhood. He regards the pinning of a broken bone as acceptable, because the bone is *broken*.[39] The intervention involved in postmenopausal motherhood, in contrast, is not curative, since it is normal and natural for a woman of 60 to be unable to conceive. As with Lappe, Zwart's argument rests on the idea that there is a clear logical distinction between correction and enhancement.

A different analysis of nature in the context of reproductive bioethics occurs in Daniela Cutas's and Lisa Bortolotti's analysis of the regulatory distinction between natural and assisted conception. The authors query the logic of the fact that 'natural' reproduction is largely unregulated, while artificial reproduction is the focus of extreme legal and political interest. Along with many mainstream bioethicists, they are sceptical about the idea that there are moral boundaries between the natural and the artificial. However, they show that many of those who share such scepticism still tend to afford special moral protection to natural reproduction in their arguments, and that moral assumptions concerning the natural are more deeply embedded even in mainstream bioethics than one might suppose.[40]

Aside from questions about need and regulation, reproduction raises questions which refer more specifically to the properties of new classes of 'unnatural' entity. This can be seen most explicitly in debates about artificial gametes (AGs). The possibility of creating gametes *in vitro* began to be discussed by bioethicists from the 2000s, when reports of scientific advances in the field were first published. Because of the specific terminology involved, the moral significance of the natural/artificial dichotomy was an obvious area for debate.[vi] Giuseppe Testa and John Harris argue that the artificialness of AGs has no ethical implications at all.[41] They also strongly emphasise the similarity of artificial gametes to natural gametes, claiming that the only difference between them, is that artificial gamete formation takes place outside the body rather than within.

[vi] Interestingly, as time has gone on, the term 'artificial gametes' has fallen into disfavour, perhaps precisely because it did invite such debates; the term 'artificial' is associated with the unnatural, and this is negatively loaded. When in 2014, the Journal of Medical Ethics ran a special issue on this topic, the term it used for the issue was 'stem cell-derived gametes', while the various submissions used a wide variety of terms. See http://jme.bmj.com/content/40/11.toc

Lippman and Newman, in contrast, emphasise the *difference* between artificial gametes and natural ones.[42] These differences are presented in terms of fragmentation and alienation. The natural processes of reproduction are separated into their component parts, which, it is claimed, will serve to diminish the moral status of the entities involved. Newman and Lippman seek to show that however similar AGs may be to natural gametes, the means of their production will mark them out, and mark out likewise the embryos created with them. There is an important distinction here between the unnaturalness of the processes involved – and the composition of the final product itself. The dispute turns partly on whether the moral status of an entity derives from its properties, or from its history or provenance. For Newman and Lippman, even if the AGs or the embryos derived from them are indiscernible biologically from other gametes or embryos, they may still be morally disadvantaged.

Similar ideas can be found in the work of Oderberg and Laing, who attack John Robertson's view that reproductive technology is morally equivalent to natural reproduction, and that reproductive autonomy therefore applies to both endeavours.[43] Oderberg and Laing point out the different processes involved in the natural and assisted reproduction, rejecting the idea that 'the freezing, mass storage, experimentation upon, quality control and destruction of particular parents' offspring is a legitimate technological extension of natural methods of reproduction.'[44] Oderberg and Laing's concern reflects a significant feature of the Catholic position: the emphasis on integrity and dignity in reproduction. For example, Tonti-Filippini writing in the National Catholic Bioethics Quarterly, states that 'intentionally fragmenting parenthood' is morally problematic. Part of the reason for this, he argues, is that the relationships involved in reproduction are non-transferrable, or inalienable.[45]

Oderberg and Laing also suggest that the replacement of natural processes involved in reproduction, with industrial and commercial ones results in a situation in which "deception, secrecy, abuse and manipulation [are] almost inevitable."[46](p346) Here, the emphasis is not so much on the unnaturalness of the processes themselves, but the greater scope that they allow for other bad things to happen. By implication, the natural way is safer in a moral, rather than medical sense, since it offers less control.

Anxiety about unnaturalness in reproduction, and its impact on family relationships has been a pervasive theme since the advent of IVF. It might be assumed that if there is a moral value inherent in natural family structures, this is associated with what is necessary for human beings and that to deviate from this will inevitably damage children. David King warns that "…selecting the 'best' among multiple embryos sets up a new relationship between parents and offspring. Such children are likely to feel that the essence of themselves in an important sense no longer belongs solely to them, since it has been overseen by their parents, using the all-seeing eye of genetic technology. They are no longer a gift from God, or the random forces of nature, but selected products, expressing, in part, their parents' aspirations, desires and whims".[47]

Habermas observes that when biotechnological interventions give us control over things which were previously beyond our grasp, "we have to answer" for them.[48] This seems to indicate a new era in which children may come to have much more searching questions for their parents than was the case previously. It will not be just how the child came into being that is queried, but the motives for the specifics of parental choices that determine some of the deepest aspects of the child's being.

Oderberg and Laing also have concerns about the ways in which natural family relationships may be altered by the ability to exercise artificial control over reproduction. They speak of possibilities such as cloning as "inimical to the common good, including family life and the natural bonds of kinship and identity that are at the heart of a well-functioning society."[44] Here, the natural is associated with the family, but also with a broader socio-political view of how society should be constructed. Cloning in this context is not discussed in terms of wronging an individual *per se,* but as an attack on the fabric of society.

Public perceptions, the media and discussion of the natural

"The natural/unnatural distinction is one of which few practising scientists can make much sense"[49]

If unnaturalness and immorality is a taboo conjunction in mainstream bioethics, it is a staple of mainstream journalism. Insofar as media reports can be taken to reflect public concerns, this could also indicate that the connection between morality and nature is extremely powerful in the minds of 'ordinary' people. In the following analysis, three news sources (The Daily Mail, The Guardian and BBC News Online) were consulted for their treatment of nature in bioethical debates. The topics discussed included the production of genetically modified food, reproductive technology, and climate change.

Concerns about unnatural interventions, however defined, are often associated with fear about risk. If there is an objection to a particular endeavour, it is assumed that there *must* be risks involved. Accordingly, risk and uncertainty features strongly in the media discussions. Often there seems to be an urge to find some kind of consequentialist basis for an argument. While risk is often discussed in the bioethics literature, it tends not to play quite such a large part.

The Daily Mail has published several articles on the risks associated with farming genetically modified animals for food. The discussion includes some explicit concerns about safety issues, but there is also a subtext of monstrosity (Frankenfish, Superpigs) and a suggestion that the unnatural animals might run out of control: "[c]ritics fear the GM salmon will escape into the wild. It is suggested they might interbreed with wild fish or effectively kill off wild populations because they will consume all the available food."[50] Elsewhere, on the subject of the 'Superpigs' a warning note is sounded: "We should not lose sight of the fact that we still understand too little to predict the consequences of allowing GM fish, insects, birds and other animals loose on the world."[51]

Safety concerns are also expressed relating to '3 parent babies'. "Even among those who do not oppose the technique on ethical grounds, many fear that we have insufficient scientific evidence that it is safe."[52] Interestingly, here the journalist seems to distinguish between safety concerns and ethical concerns. Again, we can see in the selection of Daily Mirror headlines that there is no attempt to defuse or 'unload' potentially troubling terminology or associations, and in fact these associations appear to be sought out and revelled-in.

The Guardian, on the other hand, shows a very different approach, one which much more closely mirrors the mainstream bioethics discussion. “We pretend that the debate about genetically modified crops is a debate about science when the reality is actually that the science is very clear. It is really a debate about values. About people [with] strongly held personal opinions and beliefs [who] believe that there is something wrong in humans modifying nature.”[53] And the connection is still more evident here: “GM food is unnatural, reply some environmentalists. But take a look at the list of ingredients on any of the tins or bottles of processed food and drink and you will find hundreds of unnatural ingredients. And although GM food isn’t entirely natural, that isn’t necessarily a bad thing; food poisoning agents such as salmonella are natural, and they kill thousands of people each year.” [54]

Concern over the power of large corporations, and their motivations was discussed in several articles: “[p]eople will still be concerned that this is a technology that potentially interferes with natural systems - they'll be concerned about big corporations having control over the technology and, at the end of the day, you feed it to yourself and your children and that will be a particular concern for families across the UK.”[55] An article in The Guardian reports on the ethical practice of companies specifically with reference to the use of the word ‘natural’: “‘Companies shouldn’t be able to do an end run by slapping a ‘natural’ label on a product that contains GMOs as, unfortunately, they are allowed to do today,’ says Urvashi Rangan, executive director of the Consumer Reports Food Safety and Sustainability Center. ‘Leave it to the state of Vermont to pick up where the FDA has left off when it comes to defining natural.’”[56]

The Daily Mail also emphasises the profit-driven motivation of corporations: “The net effect is that fish farming companies can harvest the fish much more often, so boosting production and profits.”[57] And in the article on ‘Superpigs’: “Brave words about protecting the consumer have turned out to be empty. Resistance to those who wish to manipulate what we eat and drink is giving way to collusion.[…] The truth is that, against the wishes of the public, the influence of GM technology can already be found on the shelves of the big supermarkets in Britain.”[58]

In the context of fertility treatment, there is a perception that artificial (unnatural) interventions are harsh and perhaps damaging for patients. There was a clear suggestion that more natural approaches were preferable, though it is not entirely clear whether this may also be a marketing ploy. A number of recent articles on this theme have discussed Kisspeptin, a cell receptor that initiates secretion of the gonadotrophin releasing hormone needed for pregnancy. It was described by all three sources very positively. “Kisspeptin […] should be gentler on the body than human chorionic gonadotropin, a drug used in IVF at the moment.”[59] “[K]isspeptin can be used to stimulate egg release in a gentler, more natural way.”[60]

Another ‘more natural’ innovation in fertility treatment is INVOcell fertilisation, a capsule that incubates eggs inside the vagina. “The clear plastic mini-incubator would also make IVF quicker, easier and more natural….With INVOcell, fertilisation takes place once the device is inside the woman’s body…We are amazed that we could grow beautiful, top-quality embryos without the complexity of an incubator.”[61] “What's beautiful about it is that the environment exactly matches what the embryo in the natural situation will be used to, and it doesn't have that in the lab.”[62]

Conclusion

"Whether there is wisdom in it or not, disgust at 'violating nature' has a long history. 'We should not mess around with the laws of nature', insisted one respondent in Life magazine's survey on reproductive technologies when IVF was becoming a reality in 1969.These attitudes need probing, not simply ridiculing."[63]

Hannah Landecker has suggested that bioethicists missed the point about Dolly the sheep: the real revolution was not the prospect of reproductive cloning, or the possibility of producing pharmaceuticals in milk, but the fact that something had happened which "alters what it is to be made of cellular biological matter – a change that is very much still pertinent to the present and the imminent future."[64] It is this that seems to be the most significant aspect of where the unnatural fits in bioethical reasoning. There seems to be an important moral difference between the natural and the unnatural when the distinction is construed in this way. As suggested earlier, bioetchnology gives us new spheres of moral responsibility. Moreover, with these developments the decision *not* to use newly-possible techniques is also transformed into a moral choice.

The relation between the natural and the artificial, between intervening and not intervening, is complex. Many human endeavours are aimed at countering the course of nature, and often we may have strong moral reasons for doing so. However, the temptation to rush from this to moral conclusions needs to be resisted. Those who tackle the question of what is natural or unnatural and its relationship with ethics have tended to arrive at very strong conclusions and these are often at polar opposites of the spectrum, i.e. either that there is no moral problem whatsoever, or that the unnatural is so obviously unethical, that its rejection requires little deliberation. This report attempts to show that on the contrary, deliberation is very much required. Whether or not one can derive moral answers from nature may still be a moot point, but it seems evident that human attempts to control nature generate many moral questions.

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