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‘Playing God’ and ‘Vexing Nature’: A Cultural Perspective

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ABSTRACT

In this paper I examine the twin concepts of ‘playing God’, and its secular equivalent – that which I term for the purpose of this discussion ‘vexing Nature’ – as they relate to arguments against (or for) certain human technological actions and behaviours. While noting the popular subscription to the notion that certain acts constitute instances of ‘playing God’ or interfering in the natural order, philosophers often deny that such phrases have any application to the central ethical issues in the areas where they are most commonly applied. I examine, in detail, the interpretations of these phrases put forward by bio-ethicists Ruth Chadwick and John Harris and argue that the concepts ‘playing God’ and ‘vexing nature’ are best understood as an expression of a moral intuition that is both significant and deserving of serious philosophical attention. My contention is that intuitions of this kind often express a concern for the virtue of, and doubt about the intentions of, the agent whose acts are described in these terms, and that these concepts are best understood as part of an historical and cultural continuum specific to the Western tradition. Understood as such, this indicates that debate continues over the purpose of art and technology, and the place of humanity within the natural environment, and that a kind of traditional teleological virtue ethics still exerts a significant influence on popular conceptions of the moral issues underlying this debate.

KEY WORDS

Virtue ethics, bioethics, genetic modification, hybridistaion

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I. INTRODUCTION

The manipulation of nature by human artifice and technology is an essential and inescapable feature of human survival. For as long as humans have existed they have employed technologies, however simple or complex, to mould nature to their ends. Arguably, part of what makes us human, part of our essence (if we have such a thing), is the ability, need and inclination to do just this. Surely, it is humanity's success in manipulating nature that has been the pivotal feature of our success as a species and our dominion over the rest of the natural world. However, what has set us apart from most other species, our outstanding ability to manipulate both our surroundings, and ourselves, to serve our ends, may be our undoing. In recent decades, it has become more and more apparent that humanity's ability to use technology to manipulate and alter the non-human world has the potential to cause, and has caused, widespread and irreversible environmental destruction, which could render the earth far less habitable for humans in the future. The power to damage the world that sustains us is an inseparable feature of the human ability to manipulate nature through our technological arts. Perhaps it is the recognition of this power that has led to what may be a universal feature of human culture: the development of moral prohibitions against certain aspects of the manipulation of the non-human world. Such proscriptions seem to have three main types of justifications. The first is the assertion that there are things that humans just ought not do, know or explore. That is, for reasons independent of the consequences of such knowledge or manipulation, there exist boundaries or limits to human knowledge, or manipulation, of the material world, which simply should not be crossed. The second justification for moral restrictions against the human manipulation of nature is that there are things that we should not do because they could have a bad effect on humans. And the third, a justification that is gaining more and more credence, is that there are some things we ought not to do as they have a bad effect on other sentient and, in some cases, non-sentient, beings.

In this paper, I will examine one aspect of the first species of justification: that some activities, and some products of human artifice or technology, are either unnatural (they 'vex Nature'[1]) or constitute instances of 'playing God' and, for this reason, should not be included in the set of activities that are in accordance with human nature and human purpose. Whilst the phrases 'playing God' and 'vexing Nature' are manifestly different in that only the former alludes to some divine being responsible for the order of the universe, underlying these differences is a subtle equivalence of meaning related to the similarity of their conceptual underpinnings. I will analyse these phrases together for three reasons. Firstly, these phrases are often used as objections to the same kinds of practices, and so are dismissed, or analysed, by philosophers and bio-ethicists in a similar way. As I will show, in many cases, such arguments are dispensed with rather quickly in philosophical investigations of ethical issues concerning, for instance, genetic manipulation, but they remain a significant concern for many people when considering the desirability of certain technologies.

Secondly, 'playing God' and 'vexing Nature' seem to be religious and secular equivalents of the same kind of concept; one which is supported by the traditional conceptual fundaments of the Western understanding of the world (i.e. the belief in a designed universe, dualism of man and nature, and of god and man, man as possessor of dominion over nature but in a capacity limited by God or by nature itself, humanity's position at the top of the hierarchy of creation). Although we have obviously made substantial scientific progress since, say, the seventeenth century, certain conceptual foundations of our world-view, like the designed universe, still persist and are a reality for many people, even though many understand and subscribe to scientific theories that have apparently replaced the traditional religious world-view, for example, Darwin's theory of natural selection. It seems that, in many cases, new theories such as these overlay, but do not completely push aside, the old understandings of the world so that we end up with a richer, more varied and complex world-view rather than a simpler one. I will show that these objections arise from, and only make sense within, the long-running debate over the place of humanity, and the purpose of art and technology, within the natural world – a debate that has traditionally taken place within a cultural framework of Aristotelian and Christian virtue ethics.

And thus, finally, I analyse these phrase together as I argue that these phrases are both best understood as an expression of a moral intuition that questions the virtue or intentions of the agent. I will argue that claims which ostensibly profess a concern over human interference in the natural order or structure, whether conceived as divinely ordained or not, are in fact expressions of concern over human 'nature' and the proper place and purpose of humanity within the non-human world. Conceived as such these arguments express a range of moral intuitions about the telos of human activity and intention, its limitations and direction. So, while at first glance these kinds of objections seems to belong to the deontological species of ethical theory, I will argue that some objections of this kind, while masquerading as straightforward deontological objections, are better understood as fundamentally concerned with the virtue of the agent performing the moral act and thus amount to an objection based on virtue ethics.

II. 'PLAYING GOD' AND 'VEXING NATURE'

Actions and decisions concerning matters that the speaker thinks should be handled with extreme caution, or even left well alone, are often described as instances of 'playing God' or 'interfering in Nature's plan'. These phrases regularly suggest that the objection to a proposed action or decision is based on a specific set of religious beliefs; in particular, they presuppose, or at least allude to, the notion that the physical universe is the result of a pre-ordained divine plan or natural order, which humans should not, but can, transgress.[2] In secular formulations, such phrases can act as metaphors for mistaking a considerable amount of power, knowledge and foresight for omnipotence and omniscience, and as metaphors for humans letting their power and knowledge exceed their caution. Furthermore, the phrase 'playing God' is also often used to describe the life and death decisions made by individuals in positions of power which appear to those affected by them as paternalistic, authoritarian or morally problematic. Ruth Chadwick, in her article entitled 'Playing God', claims that the objection that an action is wrong because it is an instance of 'playing God' has different meanings in two different contexts; the context of sensitive, life and death medical or moral decisions, and the context of moral deliberations about the use of new technologies.[3] I will focus on the second context, as it seems that the use of the 'playing God', and 'vexing Nature' objections, when applied to novel technological interventions in nature, is not only more common, but also has greater subtlety, and thus is more likely to point to an interesting moral intuition. That is, when such phrases are used to urge caution in the employment of new technologies they are, often, more than just rhetoric or metaphor, whereas when used to describe the making of serious and irreversible decisions in medicine or bioethics, they tend merely to obfuscate issues that may best be considered from a formally rational standpoint. Therefore, I will examine the application of these phrases to use of new technologies, specifically in relation to moral intuitions, and arguments, over the use of biotechnology and genetic engineering.

From their inception, technologies such as genetic engineering and biotechnology have been associated with the notions of 'playing God' and interfering with nature.[4] In discussions of the ethics of these technologies, references to the notions of 'playing God' and 'vexing Nature' have become almost clichés. It is widely recognised both within the sciences and without, that the use of such technologies is almost bound to elicit these kinds of criticisms. Public responses to science and technology are often disparaged as based on futuristic fantasies, irrational fears, journalistic sensationalism or wilful misrepresentation of the facts. But, images like Dr Frankenstein's monster and Huxley's *Brave New World* shape the way people understand, interpret and relate to new technologies.[5] It is not only 'hot topics' like genetic engineering and biotechnology that may be seen to transgress the bounds of legitimate human intervention in the processes and products of nature. A not insignificant number of people object to reproductive technologies, or refuse medical treatment on these kinds of grounds. However, without question, a significant number of people feel that genetic engineering and much of biotechnology is morally problematic, often on the grounds that it is unnatural or an instance of interfering in God's creative domain.[6] A United Kingdom survey of public attitudes towards new technological innovations in food production found that 70 per cent of those questioned thought 'genetic engineering' to be 'morally wrong', and that 62 per cent thought it was 'unnatural' but only 27 per cent thought that it was 'frightening'.[7] More recently, an Australian survey indicated that most Australians are 'uncomfortable' to a greater or lesser degree with various bioengineering technologies. The use of genetically engineered plants and, even more so, genetically engineered animals for food ranked alongside xenotransplantation and stem cell research using cloned human embryos as the greatest causes of discomfort.[8] The same survey found that religious Australians, who made up 75 per cent of the sample group, were significantly more likely to be uncomfortable with bioengineering technologies, and when the religious focus group participants identified their concerns, there were three key themes; a strong belief in a 'Divine Way', a belief in the intrinsic value of human life and a belief in the afterlife.[9] A similar survey in the United States concluded that 'the high potential for moral objection to biotechnology suggests that the issues may increasingly be framed in terms of basic values and beliefs. The belief that biotechnology is morally wrong had the strongest influence on acceptance of and attitudes about biotechnology.'[10] Interestingly, these are responses, not to issues that are considered far more morally problematic, such as human cloning or gene therapy, but to the genetic engineering of food products, an issue that many bio-ethicists consider to be of little intrinsic moral concern. Thus, the adherence to the notion that some human activities constitute instances of 'playing God' or acting 'unnaturally' plays a significant role in determining many people's reactions to various technologies, particularly those technologies involved in the creation and manipulation of life-forms.

III. CONTEMPORARY PHILOSOPHICAL INTERPRETATIONS OF 'PLAYING GOD' AND 'VEXING NATURE'

In what follows I will examine two contemporary philosophical interpretations of the ethical ideas expressed by the phrases 'playing God' and 'vexing Nature'. The first is a paper by bio-ethicist Ruth Chadwick, in which she attempts to give a sympathetic interpretation of the phrase 'playing God'. The second is a passage by bio-ethicist John Harris, in which he summarily dismisses the 'playing God' objection as being a 'non-starter'. I will show that Chadwick, by focusing on a consequentialist account of these kinds of objections, fails to recognise that the force of these objections derives from their focus on agents rather than consequences, and I will explain why Harris' interpretation trivialises a moral intuition that I have shown to be a persistent concern for a significant number of people when considering the acceptability of various technologies. I will that argue that these objections can only be properly assessed with an understanding of their cultural and historical background and as expressions of a concern for the virtue, and doubt about the intentions, of the agent whose acts are described in these terms.

Ruth Chadwick, in her article 'Playing God', gives an unusually thorough and sympathetic exploration of the claim that some actions are an instance of 'playing God'. Chadwick argues that when used in reference to new technologies, rather than in reference to sensitive medical decision-making, the claim that an action is 'playing God' is an objection to an attempt to rival divine omnipotence, rather than the divine omniscience of the decision case. According to Chadwick, people who oppose activities such as genetic engineering or artificial reproduction often do so because they see them as activities that involve the creation of life, the creation of life being the prerogative of God alone. She notes, though, that many people would argue, firstly, that we create life every time we reproduce, and secondly, that biotechnology and genetic engineering are not engaged in creating something out of nothing (God's particular type of creation), merely in assisting creation or rearranging materials. However, opponents of bio-technology or genetic engineering might argue that assisting creation is a case of transgressing the boundaries between legitimate human activity and activity that should be left to God or Nature. That is, they may maintain that there are, or should be, some fixed moral limits to human activity, beyond which humans must not be allowed to go. Obviously, if we are to take the notion of moral limits seriously we must discover where these lines should be, or have been, drawn, and according to what criteria. Chadwick explores the following three possibilities.

The first is that 'playing God' can be understood literally as a transgression of the boundaries that separate the realm of the gods from the human realm. People who do not know their 'proper place' in the scheme of things, or go beyond their limits, are guilty of what the Ancient Greeks called *hubris*, overweening pride, excessive vanity and insolence. According to the Greeks, the gods would punish such transgressions, in unusually cruel and imaginative ways.[11] Chadwick concludes that no substantively rational morality can be based on the assumption that a divine being has set limits and is monitoring the keeping of them. She claims that even if there were consensus on the existence of the divine beings and the sacredness of their will, it would be very difficult, if not impossible, to discover what the divine will was.

The second possibility that Chadwick explores is that the 'playing God' objection may be intended to indicate that nature itself, as in 'the entire biosphere', sets limits to what is possible and what is permissible, in the sense that certain actions could lead to its destruction. This seems to be an interpretation that relates more specifically to my notion of 'vexing Nature'. Chadwick posits that in this context the objection could be understood as 'making the point that human beings are not masters of nature but part of it and dependent on it.'[12] If we are interested in the preservation of the biosphere, then by implementing certain technological innovations we are taking the risk that there will be irreversible ecological consequences (for example, the release of genetically engineered organisms into the environment). The main problem, that Chadwick notes, with interpreting the 'playing God' or 'vexing Nature' objections as setting some kind of categorical limits to human technological behaviour, is that it is not clear exactly where to draw the line. In this Chadwick seems right, as most of what humans do has the potential to result in some destruction of the biosphere or to be understood as somehow unnatural or outside 'God's plan' for us, so any categorical limit on human activity along these lines would most likely circumscribe our activities far too much. Furthermore, any appeal to the consequences of our actions, to give the argument substance, results in the objection being stripped of its categorical mantle. Doubtless, it is unwise to destroy the environment that sustains us, or to act in a way that is recklessly against our conception of what is natural, but this does not amount to a categorical or deontological objection to any particular instance of human technological behaviour.

A problem related to this interpretation, which Chadwick does not mention, is that understanding these objections as alluding to some categorical limit set by nature, or God, makes them open to defeat on the following grounds. Firstly, it is very difficult to draw any clear distinction between the natural and the unnatural, and even if you somehow can, there is no obvious connection between naturalness and goodness or rightness. Philosophers have been making this point since Plato detailed Socrates' refutation of Thrasymachus' claim that 'justice is the rule of the stronger'. Likewise, it is difficult to derive a non-arbitrary distinction between what is right and wrong on religious grounds. In the *Euthyphro,* Plato refutes an argument of this kind by asking 'Do the gods love holiness because it is holy, or is it holy because the gods love it?'[13]. He points out that those who claim to know what the divine will is cast themselves in the role of the divine, or, as we say, they 'play God'. All manner of injustice has been perpetrated on the strength of distinctions between the natural and unnatural, and on notions of limits set by God through biblical revelation. For instance, the notion that sodomy is unnatural, or 'against God's law', was, and still is, used to justify the oppression and mistreatment of homosexuals. This is not to say that ethics derived from religious commitments are implausible. The question is how we can know what the divine, or natural, will is, in order to act according to it. A virtue ethics understanding may solve this dilemma, as the virtues provide a guide to keep our actions within the religious or 'natural' framework, while not relying on claims regarding categorical limits set by God, or nature.

My final criticism of the interpretation of these phrases as categorical injunctions is that claims about unnaturalness may simply be no more than a case of familiarity and unfamiliarity with certain technological or artificial products and processes. It is a rare person who now has any ethical concerns about the plant or animal products of hybridisation or, for instance, grafted fruit trees. Because of our familiarity with these things we have ceased to speculate over the question of whether they are natural in any sense, or unnatural, or whether by creating them we are 'vexing Nature' or 'playing God'. This is just more evidence that any attempt to make categorical claims that some processes or products of human art are unnatural is likely to be arbitrary. What people now call 'Frankenstein food' may in a couple of hundred years be considered completely normal.

Chadwick's third possibility is that we can determine which actions constitute instances of 'playing God' and thus set the moral limits of human action for ourselves. This is particularly important in relation to the implementation of technological innovations where the results may be unpredictable, unforeseen and unpleasant. For Chadwick, the most obvious method of limit setting is one that focuses on consequences. She returns to the Ancient Greek notion of *hubris*, and points out that consequences of hubris – the harsh punishments brought about through divine retribution (*nemesis*) – made such pride and vanity most imprudent. Removing the religious elements from this view, Chadwick suggests that the objection may in essence be a suggestion that certain types of behaviour, describable as 'playing God', are likely to have nasty consequences. However, Chadwick points out that the sorts of actions that are described as 'playing God' are of a specific kind – they are often actions that transgress previous human limitations and thus assessment of risks is particularly difficult, because the consequences of such actions are, by their very nature, unpredictable or unforeseeable.

There are several problems with Chadwick's position. The most obvious is that it is questionable whether someone would object to certain technological innovations by saying they constituted instances of 'playing God' or 'vexing Nature', if what they wanted to say was that that the technology was too risky, or that it involved unforeseeable risks. In fact, in many of the consumer surveys detailed in Section II, participants made a clear distinction between objections based on perceived risks (both to human health and to the environment) and those based on ethics, unnaturalness and 'playing God'. The second problem concerns whether Chadwick's consequentialist interpretation should be taken to mean that if technological innovations do, in fact, have good consequences then they are no longer instances of 'playing God'. It seems to me that the 'playing God' objection is quite often levelled at things that have both good and bad consequences and in quite equal measure. That is, sometimes when we 'play God' everything goes well and the outcome is good, but this does not mean it is no longer an instance of 'playing God'. Finally, in her analysis Chadwick seems to have ignored the importance of virtue. I think that if we return to re-examine the Ancient Greek idea of *hubris*, there is in it a strong suggestion of an ethic of virtue. When Chadwick notes 'that part of the reason hubris was inadvisable was because it resulted in the terrible punishments brought about through *nemesis*,'[14] she is putting the cart before the horse. The reason that hubris was inadvisable was not because it brought about terrible punishments; it brought about terrible punishment because it was inadvisable, that is, because it was the primary human vice. For example, it is not, to my mind, a morally bad idea to steal a pie (when I am not starving) because I might get caught and punished; rather it is morally bad idea because it is the manifestation of the vice of greed. (I will return to the notion of a virtue ethics understanding of these phrases in Section V.)

Unlike Chadwick, and regardless of the fact that for many people the processes and products of certain technological innovations constitute instances of 'playing God' or 'vexing Nature', philosophers and ethicists writing on the ethics of genetic engineering and biotechnology rarely take such criticisms as amounting to any serious argument against the employment of new technologies.[15] Interestingly, such phrases and arguments are regularly brought up in books and papers discussing or defending new technologies, only to be dispensed with to the satisfaction of the authors. Whether this is a kind of straw man technique which functions to make the authors feel that they have thoroughly and definitively dealt with the most pernicious popular objection is another question. For instance, Holtung in his paper 'Altering Humans – The Case For and Against Human Gene Therapy', examines four versions of the argument that gene therapy is an instance of 'playing God' and is therefore morally wrong, and concludes that 'the playing God argument is not a good argument against somatic gene therapy'.[16] John Harris calls it a 'non-starter', and William Grey says

> 'playing God' is an expression which is unhelpful as an analytic tool because it suffers from vagueness and multiple ambiguity, and in any case alludes to a dubiously secure foundation for moral principles. Apart from the unexceptionable metaphorical and rhetorical uses of the phrase … it … does more to obfuscate than to clarify.[17]

But if such objections are so easily and definitively dealt with, why do the 'playing God' and 'vexing Nature' objections keep being brought up and needing to be refuted? It is perhaps because, in attempting to refute them, philosophers and bio-ethicists fail to represent the cultural depth and ethical complexity that lies behind such objections.

For instance, John Harris has this to say about the 'playing God' objection:

> If it is supposed that we ought not to play God a number of assumptions must be made. The first is that God has a monopoly on the role; the second is that she is doing a good job (or a better one than we would do) and perhaps in consequence has a right to be left to get on with it; the third is perhaps that God's will is expressed in nature and that consequently the so-called natural order must not be disturbed. You don't have to be an atheist to see that the idea is a non-starter. Even believers must believe it can be right to disturb and redirect the course of nature otherwise the practice of medicine itself would be wicked. … No one who believes that it is right to take an antibiotic or to vaccinate her children believes either that God is doing a great job unaided or that it is wrong to disturb the natural order.[18]

Now, while Harris' argument seems on the face of it very convincing, it misrepresents a most important factor in understanding an objection that appeals to the notions of 'playing God' or 'vexing Nature'. Rational people do believe that

God, or Nature, is doing a good job, or at least a better one than we would do. For instance, there is now widespread agreement that misuse of antibiotics in human medicine, and the addition of them to animal feeds as growth-promoting agents, has led to an alarming increase in antibiotic-resistant infectious agents. Furthermore, many (perhaps most) people also believe that a distinction can be made between legitimate uses of human art and technology and illegitimate ones. The line may not always be drawn in the same place, but a large percentage of people do want to draw it somewhere. Harris claims that anyone who believes that it is acceptable to vaccinate his or her children must not believe that God or Nature is doing a good job. This is far from a foregone conclusion. In fact, a serious percentage of people do not vaccinate their children, and often for the exact reason that they do believe that God or Nature is doing a good job and that left to its own devices the child's natural immune system will be sufficient protection. Furthermore, many people who have their children vaccinated still believe that God or Nature is doing a good job, but they also believe that protecting their children from disease in any way that they can is part of the legitimate role of humans. This does not mean, as Harris seems to want it to, that all people who have ever received any medical treatment whatsoever, must then agree that there can be no boundaries, whether religiously ordained or derived from some concept of naturalness, upon the legitimate use of human technology. Many, seemingly rational, people do have a moral intuition that the realm of nature and the realm of art are in some sense distinct, or perhaps that the role of natural creation is different from the role of human art and technology. That is, perhaps it is not the job of human art and technology to 'make nature better', amend nature, dominate nature or bend nature to our ends. This is not to say that humans therefore cannot *do* anything, it is just to say that what is at issue is both the way we do things and the sort of things we do. Notions such as manipulating, meddling, modifying, controlling, dominating, vexing and playing with have little appeal for many people as descriptions of the purpose of human art in relation to nature. And what is distasteful about all these words is that they allude to viciousness and an unsavoury motivation.

One of the most common philosophical responses to the claim that some actions constitute instances of 'playing God' and 'vexing Nature' is to deny that there can be any limit placed on human 'artifice' because to maintain this position requires that humans be conceived as 'apart' from nature. The 'playing God' objection, many bio-ethicists argue, is undermined by the fact that it relies on the notion that humans are not part of nature, or accounted for in God's or nature's plan.[19] Harris, for instance, claims that 'the idea that human beings should not disturb what God has so carefully arranged presupposes that we and the disturbing things we do are not part of those arrangements'.[20] This kind of response misses the point at issue. The problem is that moral intuitions of the kind being discussed here highlight the uncertainty of humanity's place in the natural order or in God's creation. It is not, and cannot be, the case that we either are or are not part of nature. Our equivocation between seeing ourselves as part of and as apart from nature, that is, as beings with agency in a world of causes and effects, is what is interesting about the human condition and about our understanding of our place in the world.[21] Neither science nor religion solves this tension. In the monotheistic religions (Islam, Christianity and Judaism), and possibly in many other cultural traditions too, a significant portion of the mythology or scripture concerns the notion that humans rebelled; that because of our actions (or our knowledge of good and evil) we complicated our place in the world. Simply saying that God should have taken account of us in his arrangements misrepresents the complexity of our attempts to understand humanity’s fate and role within creation. And science does not fix this either. Just saying something shallow like ‘humans are part of nature and therefore they can’t do anything that isn’t natural’ totally overlooks the complexity of our understandings of ourselves. Firstly, science rarely has the tools to explain and account for our conscious lives and, secondly, the fact is that we do place, and always have placed, limits on how much we can intervene in the processes of the world of which we are part in this most interesting and complex way.[22] The notion that there are things that are natural, and things that are artificial, not only has widespread currency in the contemporary Western world, but also has deep cultural roots in Renaissance and post-Renaissance European thought. I present some evidence for this historical claim in the following section of the paper. The distinction between natural and artificial or artefactual is one of the conceptual underpinnings of our understanding of the world. Harris, and others, could be somewhat subtler and perhaps suggest that such dualistic understandings are meaningless or a misrepresentation of the way the world actually is, but it will not do to simply overlook the dichotomies that we use in order to make sense of the world and our place within it. So, Harris’ analysis is problematic on two levels; not only does he trivialise a moral intuition that is deserving of serious philosophical attention, but he also analyses the phrases that are used to express that intuition without any recognition of the rich and complex cultural foundations on which they are based. Without understanding the cultural resonance of such discourse, a proper understanding of the sense and reference of these terms will not be reached.[23]

IV. THE CULTURAL FOUNDATIONS OF ‘PLAYING GOD’ AND ‘VEXING NATURE’

In what follows, I will examine some of the history of the ‘playing God’ and ‘vexing Nature’ objections, to show that they are best understood in reference to the long-running, and culturally-specific, debate over the relationship between Art and Nature (and man and God, or the gods), and the proper place of humanity in nature. To do so, I will analyse a selection of literature from the late Renaissance and seventeenth century in order to show that current concerns over the limits and legitimacy of various technologies are part of an historical continuum of concern over the proper purpose and place of humanity in nature. The notion of a radical individual freedom, in which we are completely at liberty to 'make our own nature', is a relatively recent product of existential philosophy and a notion that is alien to much of the cultural discourse that preceded it. Prior to this, during the seventeenth and eighteenth centuries, much philosophical discussion had examined the notion of human freedom, as it functioned within the boundaries and limits of a physical and social world created by God, and determined by Nature. Discussion of the purpose and limits of human art and technology, in relation to natural, or divine, creation, and such notions as 'vexing Nature' or 'playing God', were understood in reference to the dialectic between the nature that humans can choose and the nature that is given to them. Thus, in Western culture until very recently, human freedom has always been understood as, to some extent, limited by, and subservient to, God, or nature. As Shakespeare so succinctly described it, 'There's a divinity that shapes our ends, rough-hew them how we will.'[24]

Moral intuitions doubting the legitimacy of certain technologies or practices are not new – the belief that certain 'arts' are morally suspect has existed throughout the Christian era and perhaps long before. For instance, debate over the relative legitimacy of dyeing and weaving dates back to the early Latin church father, Tertullian of Carthage (ca.160-220), who argued that textile dyeing was a sin against God, whereas weaving was not.[25] This kind of debate became rife in the late Renaissance and early modern period when moralists condemned the use of cosmetics to enhance natural beauty as being 'sinister arts' and thus a perversion of nature. Sixteenth and seventeenth century Puritans took up Tertullian's argument and could be identified by their plain undyed clothing. They denounced the use of various 'arts', including the horticultural arts, as a perversion of nature. There are two unusual and interesting literary expressions of such concern over botanical technology, and it is from one of these that I have taken the term 'vexing Nature'. In what follows I will show how examining these early modern expressions of concerns regarding the legitimacy of botanical technology, can help to illuminate aspects of the contemporary use of the 'playing God' and 'vexing nature' objections to technology, and can provide an historical and cultural continuum in which to make sense of such objections. The first is a poem by the seventeenth-century poet Andrew Marvell called 'The Mower Against Gardens'.

The Mower Against Gardens

Luxurious man, to bring his vice in use,
Did after him the world seduce,
And from the fields the flowers and plants allure,
Where nature was most plain and pure.

> He first enclosed within the garden's square
> A dead and standing pool of air,
> And a more luscious earth for them did knead,
> Which stupefied them while it fed.
> The pink grew then as double as his mind:
> The nutriment did change the kind.
> With strange perfumes he did the roses taint,
> And flowers themselves were taught to paint.
> The tulip, white, did for complexion seek,
> And learned to interline its cheek;
> Its onion root they then so high did hold,
> That one was for a meadow sold.
> Another world was searched through oceans new,
> To find the marvel of Peru.
> And yet these rarities might be allowed,
> To man, that sovereign thing, and proud,
> Had he not dealt between the bark and tree,
> Forbidden mixtures there to see.
> No plant now knew the stock from where it came;
> He grafts upon the wild the tame,
> That the uncertain and adulterate fruit
> Might put the palate in dispute.
> His green seraglio has its eunuchs too,
> Lest any tyrant him outdo,
> And in the cherry he does nature vex,
> To procreate without a sex.
> 'Tis all enforced – the fountain and the grot –
> While the sweet fields do lie forgot.
> Where willing nature does to all dispense
> A wild and fragrant innocence,
> And fauns and fairies do the meadows till
> More by their presence than their skill
> Their statues, polished by some ancient hand,
> May to adorn the gardens stand,
> But how so'er the figures do excel,
> The gods themselves with us do dwell.[26]

It was my reading of this poem that inspired my interest in arguments of this kind, as I found it fascinating that there was an ethical concern in the seventeenth century over the increasing capabilities of botanical science in the areas of selective breeding, hybridisation and grafting. This seemed to me to mirror current popular concerns over the legitimacy of genetic modification and advances in biotechnology. The second piece comes from Shakespeare's *The Winter's Tale,* and is a dialogue between Perdita, the princess of Sicilia, and Polixenes, the Bohemian King, in which they discuss, with only limited comprehension of their own and each other's cases,[27] the relationship between Art and Nature with reference to the relative merits of the hybrid 'carnations and streaked gillyvors'.

This dialogue, the *locus classicus* of seventeenth-century contributions to the Art-Nature debate,[28] and one that well represents its complexity, is striking in its uncanny likeness to current popular discussions of genetic modification.

PERDITA: Sir, the year growing ancient,
Not yet on summer's death, nor on the birth
Of trembling winter, the fairest flowers o' th' season
Are our carnations, and streaked gillyvors,
Which some call nature's bastards. Of that kind
Our rustic garden's barren, and I care not
To get slips of them.
POLIXENES: Wherefore, gentle maiden,
Do you neglect them?
PERDITA: For I have heard it said,
There is an art, which in their piedness shares
With great creating nature.
POLIXENES: Say there be.
Yet nature is made better by no mean,
But nature makes that mean; so over that art,
Which you say adds to nature, is an art
That nature makes. You see, sweet maid, we marry
A gentler scion to the wildest stock,
And make conceive a bark of baser kind
By bud of nobler race. This is an art
Which does mend nature — change it rather; but
The art itself is nature.
PERDITA: So it is.
POLIXENES: Then make your garden rich in gillyvors,
And do not call them bastards.
PERDITA: I'll not put
The dibble in earth, to set one slip of them;
No more than, were I painted, I would wish
This youth should say 'twere well, and only therefore
Desire to breed by me.[29]

So what might we learn about 'playing God' and 'vexing Nature' from the literature of the late Renaissance and early modern period? First, that concern over the morality of horticultural and technological artifice is not a new thing and, secondly, that in this period, much like now, the notion that there was something immoral about the process and products of human manipulation of nature, seemed to be quite common – and one that was given fairly short shrift by the educated. In the dialogue from *The Winter's Tale*, Perdita (who expresses a distaste for what she calls 'nature's bastards'), although a princess, has been brought up as a shepherdess and acts as the mouthpiece of the rural population. Likewise, in the poem, 'The Mower Against Gardens', the words come from the mouth of a unrefined and unsophisticated rural 'naif', and so are an ironic presentation of popular, and more particularly Puritan, concerns over the morality of the gardeners' art. Related to this is the suggestion, within both the poem and the dialogue, that the fruits of horticultural development are to be reaped only by the upper classes. The negative comparison made between the 'enforced' 'fountains' and 'grottoes' of the opulent Renaissance pleasure gardens, and the 'sweet fields' and 'wild and fragrant innocence' of rural nature, and the line: 'Our rustic garden's barren of that kind' both intimate that the benefits of human horticultural artifice (e.g. variegated carnations, and double pinks) belonged to the upper classes not to the 'rustics'. This, of course, is much like contemporary concerns over biotechnology and genetic engineering; that the benefits of these technologies are only afforded to wealthy trans-national corporations that own the technology, and the rich countries who can buy it.[30]

Another interesting aspect of both the dialogue and the poem, and one that features in much of the popular contemporary debate over the proper relationship between Art and Nature, is the suggestion that some boundaries simply must not be crossed. Answers to the question of where the boundaries derive from differ, but the objection remains largely the same – some unions do not occur in Nature and thus should not be enforced through art. In the dialogue, Perdita mentions that the 'carnations and streaked gillyvors' are called by some 'Nature's bastards' – this amounts to a suggestion that they are the products of illegitimate unions and, further, that the social and moral order extends even into the vegetable kingdom. For Perdita, by marrying the 'wild and tame' the horticulturalist is acting in a way that confounds the fundamental distinctions and dualisms on which the moral, social, and thus natural, order rests. In Marvell's poem, a similar objection is expressed:

> Had he not dealt between the bark and tree,
> Forbidden mixtures there to see.
> No plant now knew the stock from where it came;
> He grafts upon the wild the tame,
> That the uncertain and adulterate fruit
> Might put the palate in dispute.
> His green seraglio has its eunuchs too,
> Lest any tyrant him outdo,
> And in the cherry he does nature vex,
> To procreate without a sex.

'Forbidden mixtures' are a vexation of both nature and the moral and social fabric. An illegitimate grafting of wild upon tame is both morally 'uncertain' and socially destabilising ('adulterate'). Many contemporary objections to biotechnological practices rest on the notion that the 'forbidden mixtures' or 'uncrossable' boundaries relate to the boundaries between species, or the boundaries at least between kingdoms. The announcement of plans to use genetic material sourced from an Arctic-dwelling fish to produce a frost-tolerant strain of tomato resulted in a public outcry. Likewise, public responses to xenotransplantation have been overwhelmingly negative.[31] Much of the opposition to these technologies has been based on the notion that the boundaries between the animal and plant kingdoms, or the boundary between humans and other mammal species, should not be crossed.[32] If Nature couldn't spontaneously mix the genetic material of two things, then using human technology to bring about the union was illegitimate. The response of scientists and bio-ethicists has most often been that Nature can, and does, mix disparate genetic material and observes no such boundaries; the difference (whether considered significant or not) is the far longer timescale of natural creation when compared with human creation.

Most importantly, I think both the dialogue and the poem are examining, and parodying, the 'playing God' and 'vexing Nature' objection. By creating new and 'illegitimate' kinds of plants, humanity is getting 'above itself' and confusing Art with 'great creating Nature'. In other words, the objection is to getting the purpose of Art confused with the prerogative of Natural creation (or, in a religious framework, God's creation). As I understand it, this is fundamentally an objection to not knowing or understanding one's place in the order of things, whether that order is in some sense naturally, or divinely ordained. The accusation of 'playing God' or 'vexing Nature', as Chadwick notes, seems to directly invoke the notion of the vice of *hubris*.[33] Allusion to vice and pride pervades the poem particularly in the lines:

> Luxurious man, to bring his vice in use,
> Did after him the world seduce,

and

> And yet these rarities might be allowed,
> To man, that sovereign thing, and proud,

In the dialogue, Perdita expresses a distrust of the hybrid plants because she says 'there is an art, which in their piedness shares / With great creating nature', that is that it is beyond the prerogative of humans to make art 'share' the job that belongs to nature. In doing so, human art steps beyond the boundaries of its place and purpose.

So what is Polixenes' rejoinder? Basically, like John Harris, he claims that art is natural, so anything goes, or at least that no boundaries to human art can be derived from a dualism between art and nature. This is because, he argues, the art that mends nature is nature – it is human nature to mend nature and mending nature *is* the meaning and purpose of art. Perdita agrees, at least to the minimal suggestion that humans are part of nature, but she remains unconvinced as to the virtues of the showy hybrid flowers. She seems to intimate that it is just not as simple as Polixenes suggests, and that there is a moral intuition about the proper limits of art and the proper purpose of artifice. Perhaps Perdita might say that the limit is drawn with reference to the ends being sought. Without question, what Shakespeare highlights in this dialogue and throughout the entire play, is that the distinction between art and nature is not simple, rather it is a complex interplay of mutually interdefinable and interdependent ideas. Through art, humanity is constantly testing and reaffirming its place in the natural order, and discovering the, often hidden, boundaries and limits that nature imposes upon the ends humanity may seek.

V. PLAYING GOD, VEXING NATURE AND VIRTUES

So, why might we interpret the objections 'playing God ' and 'vexing Nature' as expressing a moral intuition concerning virtue? In the case of the first phrase, the objection that an act is an instance of 'playing God' can be understood as a suggestion that the agent is pretending that he is God-like, that is, he is mistaking a lot of power for omnipotence and some foresight for omniscience. The use of the term 'playing' reminds us of the childlike position that humans occupy in terms of our knowledge. However, the force of the objection seems to lie in the notion that the agent who is 'playing God' does not know his 'proper place' in the scheme of things or has gone beyond his limits. Regardless of whether the objection is made from within a religious framework or not, the suggestion is that those who 'play God' are guilty of *hubris*. The objection that an act is an instance of 'playing God' does not refer to a categorical limit to human activity, rather it suggests that the activities of an agent who exhibits excessive pride or Promethean recklessness should be treated with caution or discouraged.[34]

Thus, it seems that the case for a virtue ethics interpretation of the 'playing God' objection is not too hard to make; but what of the claim that an act is an instance of 'vexing nature'? I have argued against both a consequentialist and a categorical interpretation of the phrase. Perhaps, by elimination and if my arguments are cogent, the only way to understand the 'vexing Nature' objection as valid, is as an expression of a concern about the virtue of, and doubt about the intentions of, the moral agent. When objections about unnaturalness or 'playing God' are used they are best understood as relating to the nature of the agent rather than a 'nature' conceived as something other than or apart from the agent. According to the Ancient Greek understanding of the concepts of nature and naturalness, these notions referred far more to what we now call human nature, rather than any idea of the natural environment or the physical surroundings. So, one could argue that the suggested limits to human manipulation of nature based on the concept of the unnaturalness of the activity may best be understood as objections to the 'unnaturalness' of the agent's motivations. That is, having certain motivations for action such as excessive pride, the agent is vexing his own better nature.[35]

To illustrate this point, I want to return again to the poem and the dialogue discussed above. Both Perdita and Andrew Marvell's mower express an apparent distaste for the products of the horticulturalists' art. What then is the central problem with these hybrid carnations, variegated tulips and double pinks in particular, and the place and purpose of human art in general, that they are both attempting to articulate? It strikes me that they are both making a point about the use of art and artifice for the wrong purposes and thus about value. Perdita thinks that such artificial creations misrepresent themselves and that their only value is skin deep or superficial. Like that of the 'painted lady', the beauty of the hybrid flowers is artificial and merely for show, as opposed to the catalogue of other plants that she lists a little later which possess a less showy beauty, derived partially from their other virtues and uses. Similarly, in relation to many current objections to biotechnological artifice, the point being made concerns the proper purpose and place of human art and its relationship to natural creation. Reproductive cloning of animals and humans is a good example of the sort of activity that elicits a largely negative intuitive response from many people. This response is often expressed as a claim that cloning is unnatural, or transgresses the boundaries of legitimate human activity. But we have seen how difficult it is to make categorical distinctions between natural and unnatural. So to what does this intuition refer? If pressed it might turn out that the major concern being expressed is about the agent rather than the act itself. That is, when people express the concern that in rearranging nature through biotechnology or genetic modification, the scientists involved are 'playing God' or 'acting unnaturally', it seems that their concern focuses on why the scientists, or anyone else for that matter, would aspire to do such a thing. The central moral question in both cases then becomes 'what sort of person would want to do that' or 'what sort of person would feel the need to do that'. This is a question about virtues.[36]

The virtue tradition is one of the oldest ethical systems, the principles of which can be traced back to the writings of Aristotle, who gave us the most extensive explication of the view.[37] For Aristotle, ethical questions were, in a sense, scientific questions, because an understanding of ethics required an understanding of basic human needs, common capabilities, motivations and purposes. A full understanding of something within the virtue tradition involved understanding the *causes* of something's being the way it is, that is, scientific knowledge is not just of what exists, but of why something is what it is. An understanding of why something is what it is, for Aristotle, involved an understanding of the four causes of its existence – *material, formal, efficient,* and *final*. Aristotle's version of science differed from modern science in that we no longer consider it essential to understand an object's final causes, or characteristic activity. For Aristotle, to fully understand an object, it was necessary to understand not only its characteristic or natural activity, but also the goal or purpose of this activity, that is to understand an object's *telos*. According to the virtue tradition everything has a specific nature, which it strives to fulfil. What is natural for something is, then, that which is in accord with its ability to fulfil its natural activity, and conducive to its flourishing.[38] According to Aristotle, the *telos* of human life was *eudaimonia*, sometimes translated as happiness, gained through the development and exercise of the virtues, under the application of practical reason or wisdom.[39] However, modern virtue theory tends to subscribe to a more moderate view of Aristotle's notion of teleology, whereby the *telos* of human life, rather than being discoverable, may be constructed from an inquiry into what we regard as the most fundamental, and valuable, aspects of human beings.

If it is, then, the case that the concerns expressed by the phrases 'playing God' and 'vexing nature' are best understood as pertaining to virtues and as suggesting that by behaving with excessive pride, or *hubris*, we frustrate our *telos*, it might explain why objections of this kind have continued to be made even when, on the face of it, such arguments appear to presuppose a conception of nature, or of God's plan, which is no longer easily defensible in the light of contemporary scientific, and reductive, understandings of the world. Understood as appeals to an ethic of virtue, these expressions belong to, and only make sense within, the long-running debate over the place of humanity, and the purpose of art and technology, within the natural world. Such debate has a long history in the Western tradition, and has taken place within the framework of a teleological virtue ethics. Removed from this framework and analysed within a post-enlightenment conception of consequentialist or deontological ethics, the phrases 'playing God' and 'vexing Nature' cease to make proper sense. When analysed in the light of an historical and cultural continuum, specific to the Western tradition, phrases like 'playing God' and 'vexing Nature' act as indications that debate over the purpose of art and technology, and the place of humanity within the natural environment, continues and that a kind of traditional teleological virtue ethics still exerts a significant influence on popular conceptions of the moral issues underlying this debate. Furthermore, such a conception of virtue ethics can still make sense in the absence of belief in a supernatural designing agency, as it can be grounded in a notion of teleology in which humanity can choose its own ends or purposes, can define its own limits with respect to the manipulation of nature, and within the boundaries of human nature and the environment, whether these are understood as given by God or by Nature.

NOTES

I owe a debt of gratitude to both Andrew Brennan and Stewart Candlish for their help in getting this paper into its final form.

[1] For the purposes of this paper I have decided to use the term 'vexing nature' to describe the secular equivalent of 'playing God'. This is mainly for ease and symmetry, because I think that it summons up a lot of the emotional response that 'playing God' is intended in its many uses to summon up. The term is an allusion to Andrew Marvell's seventeenth century poem, 'The Mower Against Gardens', in which the author parodies Puritan concerns about the morality of using the horticultural arts to create pleasure gardens. The poem is reproduced in the second paragraph of part IV of this article.

[2] Grey 1998, p. 525.

[3] Chadwick 1990, p. 39.

[4] One of the earliest books on the science and ethics of genetic engineering, June Goodfield's 1977 book about the Asilomar Conference and the birth of genetic engineering is called *Playing God*. Her book is neither the only one which uses the phrase in the title nor which refers to such notions within the scope of the book.

[5] For an interesting discussion of popular responses to new technologies in relation to cloning see Nelkin and Lindee 2000, p. 326.

[6] 'Data from Eurobarometer findings suggest that large sections of the public are deeply ambivalent about much of modern biotechnology. The prevailing focus of this ambivalence tends to be moral, a collection of anxieties about unforseen dangers that may be involved in a range of technologies that are commonly perceived to be "unnatural"'. (Biotechnology and the European Concerted Action Group, 1997. quoted in Kamaldeen and Powell 2005.

[7] Lee et al. 1985.

[8] Only 28 per cent of the participants were comfortable with the use of genetically engineered plants for food whereas about 25 per cent were 'not at all comfortable' with that technology. Participants' reactions to the use of genetically engineered animals for food were even more negative, with 35 per cent of participants 'not at all comfortable' and only 12.5 per cent comfortable to a greater or lesser degree.

[9] *The Swinburne National Technology and Science Monitor,* 2004.

[10] The same survey showed that while the most common reason for opposing biotechnology involved concerns that it could 'threaten the balance of nature', a significant proportion mentioned that biotechnology was 'not natural' or, was in some way, 'against God's will'. Hoban and Kendall 1993, pp. 4–5.

[11] For instance, Ixion, who fell in love with, and tried to sleep with, Hera, wife of Zeus King of the gods, was bound to a wheel in Hades that turned for eternity.

[12] Chadwick 1990, p. 44.

[13] Plato *Euthyphro,* 10B-11B, from Tredennick 1986, p. 33.

[14] Ibid., p. 44

[15] This is not to say that there have been no serious or successful attempts to provide an analysis of such phrases. Ruth Chadwick's article 'Playing God', as discussed, is an example of a serious and non-dismissive analysis of the phrase 'playing God'. Likewise, Gary Comstock's book *Vexing Nature?* (2000) is a thorough analysis of several variations of the argument that agricultural biotechnology is wrong because it is unnatural. Steven Vogel (2002, 2003) and Keekok Lee (1999) have also made interesting contributions to the debate over humans and naturalness. My claim is, merely, that within much of the literature of bioethics such arguments tend to be dismissed on grounds similar to those provided by Harris. I take Harris's view as representative of a view that is common in bioethics – that these objections are trivial and easily dealt with. See Evans 2002 for a sustained argument that debate over genetic engineering has been 'thinned' by bioethicists, and both religious and secular concerns marginalised in the public arena.

[16] Holtung 2000, p. 326.

[17] Grey 1998, p. 530.

[18] Harris 1992, p. 146

[19] Holtung (2000, p. 326) puts forward an argument of this kind.

[20] Harris 1992, p. 146.

[21] There are several ways of understanding the unique and complex relationship that humans have to the non-human world. Traditionally the complexity arose from the belief in an essentially 'spiritual' and perfectible humanity caught in an essentially 'material' and imperfect world. In a post-Newtonian understanding of the universe, the problem seems to arise as to how we can account for the behaviour of conscious agents caught in a network of causes and effects. Comments on agency informed by Candlish 2001, p. 156.

[22] There is no agreement among self-proclaimed naturalist philosophers themselves over how to accommodate, let alone give, a reductive account of human ethics and consciousness. Daniel Dennett (2003, p. 21), for example, complains about Steven Pinker's (1997) 'continued dalliance with mysterian doctrines of consciousness'.

[23] I am using the notions of 'sense' and 'reference' in the way these are employed in Brennan 2002.

[24] Shakespeare, *Hamlet* Act 5, scene ii. Quoted from *The Complete Works of William Shakespeare* (Cleveland: The World Syndicate Publishing Company, 1929).

[25] Throughout the Christian tradition, the concept of nature has been defined in terms of God's creation, which implies an ontological distinction between accidental and essential properties. Colour was considered to be an essential property, and thus dyeing involved changing the nature of God's creation. In contrast, weaving merely involved re-aligning fibres, position being an accidental or secondary property, and was thus an acceptable use of technology.

[26] From Ormerod and Wortham 2000, pp. 101–5.

[27] Ibid., p. 97

[28] Ibid.

[29] Shakespeare, *The Winter's Tale*, Act 4, scene iii. Quoted from *The Complete Works of William Shakespeare* (Cleveland: The World Syndicate Publishing Company, 1929).

[30] Vandana Shiva, in many of her books, but specifically in Shiva 2000, makes this criticism of biotechnology companies and their behaviour towards countries in the so-called 'developing world'.

[31] For instance *The Swinburne National Technology and Science Monitor, 2004* showed that most Australians are 'uncomfortable' with the notion of 'growing human transplant organs in animals'.

[32] One might attempt to counter this objection to 'crossing natural boundaries' by pointing out that the way Western biological science has chosen to divide up the world has been determined by our cultural interests and is thus an almost arbitrary social construct, rather than a characteristic of nature itself. John Dupré (1993) defends a view of this kind. It seems to me, however, that it might still be possible to object to such 'mixtures' on the grounds that they don't happen spontaneously in nature, but this kind of categorical objection is problematic, as I will suggest later.

[33] Central to the ancient Greek understanding of humanity's place in the natural order was the concept of 'equilibrium'. *Hubris* could cause a person to get above his allotted place i.e. out of equilibrium, and would be followed by a 'fall' to put things back into balance. The maxim 'know thyself' was fundamental to the maintenance of this equilibrium. The quintessential presentation of equilibrium at work is in Sophocles' play *Oedipus Rex*.

[34] An anonymous reviewer has pointed out that it may be that the evaluation of a person's action as a transgression of a categorical limit may be prior to the ascription of the vice of *hubris* to that person. This may be so within a framework from which categorical limits might be derived, such as a religious one, however, as the 'playing God' objection is used both from within religious frameworks and from outside them. It seems, then, that accepting the priority of the ascription of *hubris* can provide us with a more universal understanding of the phrase, and one that transcends religious frameworks.

[35] Of course, the question as to which characteristics of human nature are virtues and which vices might be even more fraught than the question as to what processes or articles are natural; however, this discussion would require its own paper.

[36] Ronald Sandler (2004) examines and assesses the argument that certain agricultural biotechnologies are contrary to the virtue of humility.

[37] Thomas Aquinas attempted to synthesise Christian theology and Aristotle's science and ethics, and his views have had a great influence on Western thinking, both about the laws of nature and about God's plan.

[38] Des Jardins 1997, pp. 20–21.

[39] Aristotle, *Nichomachean Ethics*.

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