



PLAYING GOD

Scientific, Ethical and Technological Challenges

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Overview

Professor Gareth Jones delivered this lecture on 22nd June 2004 in the Okinaga Room in St Edmund's College, Cambridge. An audio recording of the lecture and subsequent questions is also available. Professor Jones is from the Department of Anatomy at the University of Otago, New Zealand, and is currently a Visiting Fellow Commoner at St Edmunds. Eschatology and the Cosmic Christ'. Among his recent books is *Can we believe Genesis today?* (IVP, 2001). He is married to Hazel, a physics teacher, and they have two sons.

Is there anything wrong with playing God?

The notion of playing God raises its ugly head in most scientific domains, the intended message being that this is forbidden territory. This is a term that is generally used negatively; it's usually a term of abuse. We are going where we should not be going. We are walking into an area that should be left to God. It's as though we are out on a walk, and ahead of us lies a field surrounded by a fence and a gate. There's no notice on the gate forbidding us from entering, but we assume that the fence by itself is enough to warn us that this is not somewhere we should wander. We should walk around the field or turn back. The field is God's field and we are mere human beings.

Not only this, but the word 'play' signifies a meddling with serious matters. We don't have to play, and we don't have to indulge in these activities. Not only are we entering forbidden territory but we are doing so needlessly. Life would be much safer if we left well alone; if we didn't play with fire. Why don't we accept that we are limited beings and that there are certain things outside our grasp?

'Playing God' generally has connotations of going where we should not be going: inquiring into things that should lie outside the scope of our interests. It's going too far, and is treading on the toes of God. We are aiming to become God-like in our powers. In theological terms, it's often seen as our eating of the tree of good and evil, succumbing to the temptation to be like God, and refusing to accept God-ordained limitations.

But what does the notion of 'playing God' actually mean; what does it signify? Is it nearly as negative and oppressive as frequently thought? The criticism that a procedure is akin to 'playing God' tends to reflect hostility towards the procedure rather than presenting a clear rationale as to the manner in which it transgresses divine boundaries. Many years ago, the theologian Paul Ramsey is said to have commented that human beings should not play God before they have learned to be human beings and when they are human beings they will not want to play God. While this makes a superb quotation, it fails to throw any light on what human beings should or should not do in any scientific area. The most one tends to elicit from such uses of the term, is that the present human form is divinely ordained and should not be modified in any manner, leaving in limbo the numerous uses made of vaccines, antibiotics, surgery, preventive medicine, and genetic counselling. Are these illicit illustrations of 'playing God' or do they manage to escape this opprobrium?

From a Christian standpoint we are made in God's image, and hence are to function like God. No matter how much our God-likeness has been shattered by sin and rebellion against God, we are still images of our maker, even if tarnished images. Consequently, we demonstrate a great deal of his creativity and his inquisitiveness. Humans as scientists are humans as God's

images, probing and thrusting into the creation, attempting to understand it and re-direct it as stewards of God's creation. Within the medical sphere, the desire is to exercise at least limited control over evil in the form of diseases that would otherwise ravish and destroy all that is beautiful and worthy in God's world. Underlying all such attributes is a proviso, namely, that the control is exercised in a responsible manner.

When this is not the case, we see the other side of the picture, namely, that scientists may be arrogant and unworthy, with motives of self-aggrandisement and personal glory. They may show little regard for the welfare of individual humans, even when the realm within which they are working is that of medicine. Any attempt to create some new creature with superlative powers would stem from human conceit regarding the unlimited powers of human abilities. However, we should remind ourselves that this equates with playing the devil. It has nothing to do with playing God.

From a Christian perspective, we are not to use massive scientific powers for superficial and frivolous ends. There are always dangers, and to risk these for minor gains is dangerous and irresponsible. So much of the criticism of genetics revolves around its possible insubstantial uses, such as gene manipulation for eye colour or facial features. Such criticism is justified, but this is criticism of the misuse of genetics rather than of genetic advance itself. Similar criticism can be made of the misuse of many other technological developments, and even of human abilities themselves. Humans playing God only becomes dangerous when they fail to utilize their God-like capabilities in ways that will deepen and enrich the lives of human beings..

These negative images have to be taken seriously, and yet they fail to negate the overall thrust of much of scientific advance. Genetic advance per se is not synonymous with pride and arrogance. It is not an aping of God's power, since all forms of genetic therapy owe their rationale to this power. As long as the aim of therapy is the alleviation of human illness, it has the potential to elevate God's images. Nevertheless, there are always dangers, and the notion of 'playing God' should remind us that we are only to modify fundamental biological processes with enormous caution and deep humility. There is much we do not know, and there is much over which our control is tenuous and fragile at best. Playing God is an exercise in responsibility, demanding intelligence, compassion and spiritual discernment. It is not an exercise to be entered into frivolously.

Ordinary people playing God

But who is playing God? The general assumption is that it doctors and scientists. These are the groups who are tempted to transgress boundaries. This is interesting because we don't generally seem to think that artists or composers 'play God' in this negative sense. Did

Picasso play God, or Henry Moore, or Jackson Pollock? Probably not. What then about Bach, or Mahler, or John Tavener? We would probably be more inclined to say that at least some of these glorify God in their compositions; in no way are they usurping his authority. Why, then, do we tend to set apart the activities of scientists?

But this question of who is playing God goes even further than this. If anyone is playing God, it's us; it's ordinary people, and not arrogant scientists. Consider the following illustration.

Think of a couple with cystic fibrosis in the family. In their first pregnancy some years ago there were reasons to be concerned that the fetus may have cystic fibrosis. Via amniocentesis, some fetal cells were tested using a gene probe for cystic fibrosis. They knew beforehand that, if this turned out to be positive, they had a choice to make - either continue with the pregnancy knowing that the child would be afflicted with this debilitating and distressing condition, or have an abortion.

These two young people are having to make agonizing choices. These are ordinary people, without any sophisticated scientific or theological knowledge, having to determine the fate of embryos and children who will one day become adults. The situation facing them is not of their own making; they would never have elected to have to cope with a tragic disease like cystic fibrosis. They have no control over the gene underlying this condition. The decisions they make have nothing to do with heroics or hubris. They are trying to sort out the dimensions of their family life in the midst of burdens and tears.

They are forced to play God: not because of arrogance but because of necessity. They have to act responsibly, by choosing what they hope will be the better path, even though they are pitifully aware of the morally tainted nature of any choices they make. Whatever they do, momentous decisions are being taken, and people are playing God because they must play God.

Let us now imagine that, a few years further on, they wish to conceive again. On this occasion they are informed that the embryo itself can be genetically tested before it has a chance to implant in the uterus. This is the technique of pre-implantation genetic diagnosis (PGD), for which two cells will be removed from an early embryo. If PGD shows that the embryo does not have any indication of cystic fibrosis it will be transferred to the woman's uterus in the normal way. On the other hand, if the tests are positive, the embryo will be discarded and the same procedure will be carried out on a second embryo. This will be repeated until a negative result is obtained.

The couple is now confronted by a different set of dilemmas, revolving around the respective values of a four- or eight-cell embryo and a child. Once again, they are playing God by

making decisions with profound implications for at least one future individual, and even for those who will never develop beyond being very early embryos. It is their family and their children that are at stake, and they are making truly god-like decisions. They have no choice, since for them there is no escape from the reality of cystic fibrosis and its devastating effects on any children they bring into existence. In a futuristic scenario, one can envisage the use of gene therapy to modify embryos, the area of genetic manipulation.

What should have emerged is that the transition from conventional approaches to genetic ones has been gradual. We have moved into high technology, and yet the decision-making is not dramatically different from that of a less sophisticated era. This form of technology has not suddenly introduced the notion of playing God. That has been present all along; only its dimensions have changed.

There will be risks, and people like the young couple will have to exercise responsibility. But this is what being human is all about. We cannot claim that we are made in the image of God, and then walk away from what that means - exercising responsibility, attempting to improve the world for ourselves and others, understanding as much as we can, and controlling what can be controlled. Playing God like this is essential for God-like creatures. No matter how dangerous this sounds, it protects us from the illusion that we actually are gods and that we can do anything. As we play God, we also realize that we have limitations and are utterly dependent upon the one who is our creator.

I have retained this term 'playing God' for the sake of simplicity, in order to draw a contrast between its negative connotations and what I take to be far more positive ones. It may not be the best term from a Christian angle, but it has the merit of immediacy. It has the connotations of fulfilling a God-given mandate to serve others, to care for the vulnerable, and to heal. It acknowledges that humans are to participate in the process of transforming the world, by sustaining, restoring and improving what has been temporarily entrusted to us. The material world (including human beings) could be better than it is, and humans have the responsibility to attempt to achieve this, albeit in a limited fashion. While pride and arrogance are palpable dangers, so are sloth and lethargy. While pride and arrogance are frequently highlighted; sloth and lethargy are all too often ignored.

The couple coping with cystic fibrosis does not have to go in a technological direction. They do not have to choose against any embryos/future individuals with cystic fibrosis. But they do have to choose, and they do have to live with the repercussions and consequences of their choices. These could include children with cystic fibrosis, children without cystic fibrosis, and embryos/fetuses that will never live as children suffering from cystic fibrosis. They can never escape from one or other of these, because they (and we) are creatures who live in community.

Is ignorance the answer?

But wait, you may say. Don't put couples like this into this predicament. Wouldn't it be far better if we left well alone and refused to go in these technological directions? Concerns about humans playing God stem from a fear that humans are acquiring too many powers, powers they may seriously misuse. The underlying assumption is that they need not get into these realms. Why not accept what nature brings? Or what God brings, depending on one's perspective. No matter how the question is phrased the basic assumption is that it is responsible to leave well alone. There is virtue in ignorance; there is something good about a lack of control; there is something of merit in mystery and in the unknown.

If we wind back the clock of this scenario far enough, we will come to a time when there was no amniocentesis and no gene probes for cystic fibrosis, no PGD and no means of fertilizing embryos in the laboratory. Surely, these were halcyon days, with little decision-making, no destruction of embryos; and no abortions for therapeutic reasons.

Any serious arguments along these lines are doing little more than seeking refuge from decision-making in an enclave of ignorance and disease. The couple in question would be left having to cope with one or more children dying from cystic fibrosis in childhood. The 'ideal' so-called are young lives blighted by tragically foreshortened existences. While this may not be the ultimate of tragedies and while children like this can bring profound blessings and joy to some families, is there any virtue in suffering from cystic fibrosis if there are ways in which this situation can be ameliorated?

These are quite fundamental issues because they force us to come to terms with our picture of God and God's domain. How much do we leave to God, and how much is it legitimate for us to do? Do we simply sit back and let God sort everything out, or has he given us the responsibility, authority and power to sort out much for ourselves, and even for him?

I start from the foundation that humans are to exercise dominion over nature, and that we are to free ourselves from its constraints. In carrying out these mandates we are to act as good stewards of God's creation, realizing that there is much in his creation that is not as it should be. Andrew Dutney has expressed it like this:

Nature disappoints. It lets us down. Nature sometimes fails to serve the good. Indeed it sometimes generates evil. And it is a horrible irony that sometimes even human conception amounts to the generation of evil. In such circumstances of brokenness, it is not the human vocation to acquiesce but, by grace and in the strength of the Holy Spirit, to give expression to such freedom as is available by exercising dominion over nature.

There are no easy answers, since we frequently have to live with ambiguity and uncertainty. We are torn in different directions, often not knowing which is the best course of action. We may well not know which way is pleasing to God, or which way will best serve other human beings. No wonder many long for a world in which such choices don't have to be made.

Let me return to this couple with cystic fibrosis to see where further reflection on this situation may lead us. If the couple consents to any of their embryos being destroyed, it is because these particular embryos carry a gene that will result in children with cystic fibrosis. Either way, they are confronted by an agonizing moral choice – whether to dispose of the embryos or implant them in the wife's uterus knowing that a resulting child will suffer from a debilitating disease. The easy, and possibly morally preferable way out of this dilemma, is via ignorance; they are unaware of the options and can do nothing about them. They are shielded from making a difficult, and possibly invidious, decision; they will have to take what comes. This is precisely the position in which we repeatedly find ourselves, and yet we usually regard this as a position of weakness rather than of strength. Ignorance is not a virtue when confronted by malaria, tuberculosis or dysentery, or by measles or smallpox, about which something can be done. In these instances, knowledge is preferable to ignorance, although in the earlier part of the twentieth century ignorance reigned supreme.

If we opt for knowledge over ignorance, a choice between human embryos and the health status of future children has to be made in cases such as this one. At a more general level, research on human embryos raises similar issues, where the anticipated outcome of the research, albeit some distance into the future, is improvement of human health. The general thrust of acting as God's stewards comes into play here as well. There are two possible courses of action, both of which have problematic elements. This is where Christians (as well as others within the community) reach different conclusions, since specific biblical teaching and precise theological guidance are unavailable. A common approach is to seek a definitive answer to the question of when human life (personhood) begins. However, as the case of cystic fibrosis illustrates, the ethical dilemma emerges out of the choice that has to be made - between the interests of early embryos, and that of children and subsequently adults who will have a potentially serious medical condition. To greater or lesser degrees this will always be the choice.

But isn't this designing babies?

The term designer babies is one of those terms beloved by sections of the media and popular press, and it is generally used negatively. Designing babies is one of the things we should not do, because it is going too far. For Christians this means it is doing something that should be left in the hands of God, where it rightfully belongs. No one with even a modicum of common sense,

let alone spiritual discernment, would countenance the idea. It is playing God in the negative sense we encountered yesterday, because the design of babies is a clear manifestation of playing God in a foolhardy manner.

In my view, dismissing bioethical issues in this way helps no one, and it certainly fails to answer any of the major ethical and theological questions that confront us with increasing vigour and complexity each week. We have to dig much deeper. Christians, in particular, should be searching for good reasons as to why they approve of some projects and disapprove of others. The last thing they should be content with are slogans.

The central problem with this debate is its unrealistic nature, based as it is on a set of misleading images of the notion of what designing a human being might entail, and on a serious lack of appreciation of the state of genetic science. The ease with which the term 'designer baby' is employed is matched only by a fear of the ever-increasing scientific control of some humans over the nascent lives of other humans. Are human beings becoming far too efficient in their manipulatory abilities, and are they leaving far too little to chance or to divine control?

Those who readily refer to designing babies are equally free in their references to 'making babies to order'. And if babies are made to order they will subsequently be treated as little more than impersonal products. After all, this is what design is all about; the more precise and sophisticated the design has been, the more effective and acceptable the product will be. Tell me what you want, and that is what you will be provided with.

It is but a short step from here to the dubiously fascinating and repulsive picture of the factory production of babies. This comes to the fore in connection with human reproductive cloning, with its routinely presented pictures of babies being spewed out of machines in endless identical lines. Such pictures are, of course, deeply disconcerting and we quite naturally recoil from them. The trouble is that these provocative and grossly misleading images, with their oppressive overtones of a manufacturing process, are all-too-readily applied to any genetic intervention in embryos – change one gene, or discard one embryo in favour of another, and the result is a designer baby. But this does nothing to advance serious debate.

The production of a particular model of automobile is characterized by precision, equivalence and uniformity. There is no room for individuality on the production line, since each car has to conform to the specifications of that model. When I buy a car I expect it to perform exactly as all other examples of that particular model; the last thing I expect or want is for it to have interesting quirks of its own that no one had ever predicted and no one is capable of rectifying. Neither do I expect it to change its character as each year passes. To use a biological analogy its manufacture is entirely genetic in character; there is no environmental component, since no development can take place once it has come off the production line. Were the cloning of

human beings or any genetic intervention to result in such reproducibility, we would be rightly alarmed. However, an environmental component is implicit in the production and subsequent development of all human beings - whether cloned or naturally fertilized, and it is this that separates human reproduction (even with impersonal elements) from factory manufacturing processes.

In this sense, biological manufacture is a misnomer. We will never produce babies in the same way as we produce cars, washing machines, or computers, even if we set out to do so. These analogies are, therefore, seriously misleading.

If design involves precision and predictability, there is no way in which babies and future human individuals will ever be designed by people like us. This in no way justifies all the procedures in the artificial reproductive technologies, but it should make us careful that we are not misled by the terminology we use.

What then about the science? Once again, there are problems. So often the focus appears to be on choosing genes for fair hair, blue eyes, intelligence, physique, and good looks, or avoiding baldness, or whatever. The ephemeral nature of these longings only serves to demonstrate their superficiality, let alone an ignorance of the scientific precision, clinical complexities and expensive resources that would be required to achieve them. Unfortunately, instead of demythologizing such fantasies as empty claims, they are taken seriously and are used to construct tirades against realistic and therapeutically based genetic choice. The latter can then be dismissed on the ground that its goal is that of producing perfect babies, designed to order. These twin themes of perfectibility and design carry powerful negative overtones, with their message that science is assuming redemptive powers; salvation can be found in biological manipulation, and the hope of a better life emanates from genetic intervention.

What is required is a rigorous assessment of the merits of what can and cannot be accomplished by genetic science. We need to ask what can be realistically accomplished to benefit the patient. This should be our starting point with its focus on the good of the patient, with a commitment to improve the quality of the patient's life and, if feasible, to replace illness by health. This is a positive hope, but it is also a realistic one. The genetic intervention may not work; hopes may be dashed. But the attempt is to be encouraged as long as our expectations are guided by realistic clinical and scientific goals. There is no hint here of perfection or of ageless existence in a disease-free body. The dominant value is that of humility, demonstrated by caring for those in need, and of utilizing powerful technologies in the service of those potentially capable of benefiting from them.

Pre-implantation genetic diagnosis as design

Even if design in a pure factory-production sense is not to be contemplated, where does this leave us when it comes to the genetic manipulation of embryos? This is much closer to a realistic view of where biomedical science is currently at, and also of how it may develop in the foreseeable future.

Starting in the present-day, let's consider pre-implantation genetic diagnosis (PGD). This is a procedure devised to test early human embryos for serious inherited genetic conditions. Only embryos that are free from the condition are transferred to a woman, in the expectation that a normal pregnancy will develop. Inevitably, this involves selecting embryos: selecting those that are not genetic carriers of the disease trait, and discarding those that have the gene responsible for the disease.

PGD, which was first developed in 1990, is used for three different types of abnormalities.

There are, first, single gene defects that cause disorders like cystic fibrosis or Tay Sachs disease; second, the numerical chromosomal abnormalities such as Down's syndrome or Turner's syndrome; and third, structural chromosomal abnormalities such as various forms of translocation. A drawback with PGD is that it can only be used in conjunction with IVF. In other words, fertilization has to take place in the laboratory using IVF.

One of the features of PGD is that it enables the sex of embryos to be readily determined. This is both an advantage and a disadvantage. The advantage is that, when dealing with sex-linked genetic conditions such as hemophilia and Duchenne's muscular dystrophy, it enables embryos of the appropriate sex to be selected so that the resulting child will not suffer from the condition in question. This is exactly what is required. The disadvantage is that sex selection can be used for spurious social control of the next generation by providing parents with a child of the preferred sex. This form of sex selection may have nothing to do with anything medical or therapeutic.

Some people refer to babies born after PGD as designer babies, since there is interference at a very early stage of their development. In my view this is not design in any meaningful sense, even though choices are being made between embryos. But, in terms of design, the choice is a crude one. Whenever I buy a jacket and decide that this jacket is preferable to that jacket, I have not suddenly become a clothes designer. All I have done is make a selection from the two that are available. PGD is similar, even if somewhat more sophisticated. The design component is negligible. Of course, we do not have to travel in this direction, and PGD does not have to be

undertaken. However, once an appropriate procedure is available, choices are inevitably being made, even if the decision is to refrain from utilizing the procedure.

Creativity and the image of God

One of the fundamental tenets of Christian theology is that humans are created in the image and likeness of God, which points towards God as the original, with human beings as copies of that original. We imitate God by acting as he acts. Hence, the moral responsibility characteristic of humans is an echo of the moral responsibility of God, enshrining as it does the capacity to act wisely and in love. Consequently, we have a mandate to heal and restore God's creation.

A traditional understanding of this theme is that of humans as stewards who conserve and protect what God has created. God. At the heart of a conservative interpretation is an emphasis upon therapy, with its attempts to rectify what has gone wrong and restore people and the ecosphere to a functioning state. And so, we are to restore the world, rather than accept it and its fallen state in some fatalistic manner. We are to understand, protect, care for, develop, nurture, and manage the earth for God and ourselves. We are to change the world for good, even though this is often not the case.

Nevertheless, in spite of incipient dangers, God does not readily abrogate human freedom. Decision-making is central to human life, and is both a privilege and a responsibility. But the immensity of this responsibility is held in check by a further consideration, and this is that God is to be placed firmly at the centre of human existence. The dangers are immense, since God is readily replaced by technological achievement and human prowess. Alternatively, human freedom may be limited by imposing arbitrary rules and regulations. Both lead to the same endpoint: the loss of an elevated view of human dignity, and loss of God-bestowed freedom.

Although I have branded this traditional interpretation as a conservative one, it is only conservative in a broad sense. If followed through it allows the use of many creative therapeutic ventures as long as their bottom line is the attainment of wholeness. The use of artificial devices, means of by-passing normal functioning, and many forms of experimentation can all be accommodated under this umbrella. What is important is the welfare of the patient, the person being treated, not the maintenance of some unchanging and rigidly defined norm.

But is the extent of human creativity greater than I have just outlined? Does it incorporate the mandate to go beyond preserving what God has already created, and participate in what may be described as additional acts of creation? It is in this sense that humans are sometimes referred to as being co-creators with God; the created co-creator. The emphasis here is on humans as co-workers with God, because human work is needed if God's full purposes in the universe are

to be realized. Theoretically, this is a much-expanded view of human intervention in the world, since the world is still a world in progress, the fulfillment of which is partially dependent on our interacting with it through the creative use of our freedom.

It is not my task to argue the respective merits of these particular theological interpretations. All I would say is that from my more pragmatic stance, I doubt whether they lead to substantially different positions in practice. I have already emphasized what I regard as the breadth of a therapeutically based approach, and I have no problem in envisaging that this accommodates procedures such as in vitro fertilization for infertility, somatic cell gene therapy, neural grafting, and even pre-symptomatic interventions at the embryonic stage to alleviate or by-pass major diseases. Outlining a list like this is not automatic justification for any of these procedures; it is simply an affirmation that they can all be governed by a therapeutic rationale. If they are not, then they are to be judged by other criteria.

In the end what is crucial is the welfare of the individuals concerned. The determining question is always to be: what will uphold human dignity and human value – both now and in the future?

From hubris to humility

This discussion has pointed to a place for design within genetics and other biomedical areas, but design of a far more limited and humble variety than so often encountered in these debates. It is far removed from the bravado and hubris associated with the picture of a factory production line of identical and preordained babies. The challenge is to determine how we do these things, and under what circumstances we do them, because this is where responsibility, judgement and discernment come into play. We can't do anything we like; we shouldn't do anything we like. But we should do all we can to improve the quality of the lives of those around us, whether by using biological means or simply by treating them as beings of importance and as people who matter.

This it seems to me is where Christians should be contributing to this debate. If we consider that God is sovereign over all, he is sovereign over the genetic realm, just as he is over human life, human community, and the ecosphere. Divine grace and creativity are evident in all these realms, and human creativity is to follow suit. If we can say that God works through creation and, therefore, through what we describe as the natural world, there is no reason to say that he does not also work through the basic processes described by biology and, therefore, through genetic and allied mechanisms. If this is true, we can go on to say that genetic modification brought about by humans, genetic design if you like, has the potential for extending the work of God. Of course, this has enormous dangers and pitfalls, since appallingly injudicious choices can be made, but this is true of every other area of human life.

Humility is essential for rigorously assessing the merits of what can and cannot be accomplished by genetic science. Using the therapeutic and person-centred framework I have advocated, our eyes can be directed towards what can realistically be accomplished to benefit the patient. This is a far cry from the hubris sometimes encountered, but also from the anti-hubris that has become so caught up in the fear of extravagant claims that it has lost sight of the good that could be accomplished by utilizing some of these technologies.

Nevertheless, there is a cautionary lesson here, and this is to beware of obsession with the normal, something that could be accentuated by any of the current biomedical technologies. The genetic realm is as limited as any other, and talk of designing wonderful new human beings is futile. On the other hand, the rejection of a modicum of limited and very cautious design is the outcome of a spirit of fear rather than a spirit of faithfulness. We are to do what is consistent with the nature and purposes of God, and are to assess all scientific developments by the benchmark of whether they appear to forward God's work in creation. Daunting as these tasks are, and inadequate as we are to tackle them, they are enriched when theological, scientific and ethical insights are brought to bear on them in an integrated fashion.