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VOCABULARIES OF CREATION AND CREATIVITY IN DEBATES ON GENETICS AND ECOLOGY

Willem B. Drees

Technology is a major form of human creativity, since by means of it we change both our world and ourselves. It may be seen as part of the human calling to care for those in need, to heal, perhaps even to counter the negative consequences of our fallen world, as in Bacon’s notion of science and technology as ‘the Great Instauration’. But humans with their technological concerns may also be considered to be overstepping boundaries, and thus their actions may be rejected as hubris, as ‘playing God’. Prince Charles thus wrote on genetically modified food: ‘I happen to believe that this kind of genetic modification takes mankind into realms that belong to God, and to God alone’. Not only are religious metaphors thus invoked while speaking about technology, they also appear in reflections upon the ecological consequences of technology. At least since Lynn White’s article on the historical roots of the ecological crisis, there has been a concern that Christianity has fostered anthropocentric dominance, although religious resources are also called upon to support adequate attitudes towards nature, by speaking of stewardship, of nature as creation, of ‘the integrity of nature’, or even of This Sacred Earth.

1. ‘The Great Instauration’ or ‘the Great Renewal’ was the title Francis Bacon had given to his whole project to describe the current state of learning in six parts, a project of which only the second part, The New Organon (1620), was completed; see Francis Bacon, The New Organon (ed. L. Jardine and M. Silverthorne; Cambridge: Cambridge University Press, 2000).
In public discourse on technologies and their consequences we find religious vocabularies and notions from mythic material and fiction ('Frankenstein', 'the Golem') alongside metaphors from the political domain ('boundaries') to praise and to condemn, to encourage and to slow down. One also finds notions that draw upon the sciences, such as 'gaia', biophilia and 'the evolutionary epic'.

Not only has this discourse a very mixed character — religious, scientific and otherwise — but so is the participation in such debates. Scientific notions are not exclusively the privilege of scientists, nor are the religious notions only used by representatives of religious institutions. Human 'bricolage', drawing upon the resources of traditions without adhering to them, manifests itself clearly in such contexts. By studying the words, we may discover underlying concerns, values and worldviews, whether explicit or implicit.

With sponsorship from NWO, Netherlands Organization for Scientific Research, in the context of its research program, 'The Future of the Religious Past', we recently started several projects in Leiden to analyze debates on ecology (to be done by Tony Watling) and on the use of genetic knowledge (by Olga Crapels), in order to see who uses religious and scientific vocabularies, for what purposes and to what effect. In the first half of this contribution, I want to offer some reflections on general issues that may be expected to arise in studies on the use of religious metaphors in public debates on technology. I will first consider whether it is adequate to say that religious ideas are imported into public discourse, or whether the influence might go in the opposite direction, and briefly, what happens to the meanings of metaphors or concepts when used outside of their domain of origin, and second, what might be at stake for religion in public debates, more specifically in terms of institutions, values, worldviews and the like. Finally, in the third section, I will offer some theological considerations on human technological creativity.

**Direction of Fit: from Religion to Public Discourse?**

The first issue I want to consider is that of 'direction' — is it adequate to see religious vocabularies as arguments from religion, brought into public debates? If not, how might this relationship be viewed?

Pronouncements: From Religion to the World

Religious statements can be understood as messages from religion to the participants in the public debate. That seems to be the nature of papal statements, of messages from synods and of contributions by religious representatives such as a priest or a rabbi to a public debate. Sometimes this pattern is more implicit, for instance when the research platform of the leading Christian-democratic party in the Netherlands issues a report on genetics entitled ‘Genes and Boundaries’. When religious leaders or organizations come to pronounce on technological developments, the structure of the argument seems to be that the new technological developments raise questions, which the religious tradition answers. Religion offers guidance; it is expected to inform and motivate the participants of public debates.

An example of the explicit intention to show which resources might be available within traditions to deal with particular challenges, may be the series of conferences and subsequent publications by Mary Evelyn Tucker and John Grim, former fellows of the Harvard Centre for the Study of World Religions, on ‘Religions of the World and Ecology’. Each time, the subtitle invokes central notions from the tradition in question, such as The Interrelation of Heaven and Earth (Confucianism), Nonviolence in the Web of Life (Jainism) and A Bestowed Trust (Islam). Thus, these volumes explore concepts meaningful to the faithful from each particular tradition as concepts which may motivate towards greater ecological responsibility. The authors draw on the resources of the traditions, as these might offer wisdom for the ecological problems we face today. However, by using the vocabulary particular to a tradition the resources are primarily effective for those who belong to the same faith tradition.

If we are interested in contributions from religions to the public debate (in a democratic, pluriform society), a major issue is the significance of religious arguments for those who do not share the same faith. If religions are to have any role at all in the public debate (and not just within their home community), their wisdom needs to be appreciated and accessible to outsiders. Even though there should also be room for an articulation of one’s concerns in terms drawn from a particular tradition, to convince others the religious ideas will need to be rearticulated...


in more widely shared vocabularies, in order to make them intelligible and acceptable. If the ambition is not so much to participate in public discourse in which one seeks to convince or influence others, but rather a matter of decision-making in public policy, the concerns articulated in religious terms need to be expressed in more specific operational forms, so that coalitions may be formed with others who agree on a particular policy, even if not on the basis of the same assumptions. In this sense, it may be possible to combine the religious neutrality of a Western democratic society—a neutrality which itself is a major value—with appeals to religious revelation, tradition or values. There is always a potential tension between the economic and technological discourse that is 'by nature' at home in the neutrality of a democratic public debate, and values that challenge the secular, technological and economic means-and-ends discourse; but if religious contributions to public debates are allowed, it seems to me that their advocates will have to work on the translation and application of religious beliefs in order to be heard and effective.

However, it is also worth considering whether the relation between public debates and religious vocabularies as contributions from religion to public debates is an adequate understanding of the involvement of religions in public debates. There may be two reasons to challenge such an understanding:

a. Who speaks for the tradition? Does the idea of a flow of wisdom, or supposed wisdom, as contributions from the tradition to the public sphere not obscure internal struggles about the religious orientation itself?

b. What is the nature of a religious tradition? Is it adequate to see it as a group of insiders who consult their resources (e.g. the Bible) and decide on the proper course of action on the basis of these resources? Which aspects of the traditions are emphasized? How are they interpreted? Moreover, given the need for interpretation in any tradition, it should be expected that influences also run in the other direction, from the public sphere to religion. We will begin our reflections with the second set of questions.

*From the Public Sphere to Religion?*

From studies in the philosophy of language by scholars such as John Searle emerged the distinction between two directions of fit, of words to the world, and of the world to words. A description can be defined as language that seeks to achieve a fit with the world; but the world is also changed by the words spoken, for instance in making promises or

declaring marriages—thus, the world comes to fit the words. The same goes for normative language: rather than describing the world, the aspiration is to make the world conform to the normative meanings of these words.

However, when religious vocabularies are used in public debates more seems to be going on than delivering a normative contribution to such debates. In engaging new issues, such as ecological challenges or the use of genetic knowledge, meanings of the religious vocabulary may also change. Thus, in response to ecological concerns, the notion of ‘stewardship’ has acquired new meanings and so has ‘integrity of creation’. Such changes in the tradition are expressed well in the title *The Greening of Faith.* As a result of the concern with ‘nature’, meanings of ‘nature’ in the traditions have changed and the rise of new technologies provided an incentive to reflect upon human action and human responsibility, which found expression in the notion of humans as ‘co-creators’.

This is not specific to modern technological debates; it is the fate of all religious traditions that they need interpretation. New social and political circumstances and new technological possibilities create challenges not dealt with straightforwardly in normative resources. As a result, even traditions with a well-defined normative basis are always involved in a process of interpretation, which serves to bridge the distance between the past and the present. This process of interpretation often relies on a second set of scriptures (Hadith, Talmud, writings of church fathers, confessional statements, etc.) or on a structure invested with authority, such as the Papacy.

Thus, in studying religious vocabularies in debates on technology (genomics, ecology) we do more than analyze the public debate in question; we also learn about the values and views of the people involved. Participants who invoke religious images may make explicit what was believed or felt already implicitly. When we learn that in a particular community people respond to, for instance, the idea of human cloning with revulsion, we may learn from their response, subsequently articulated in various arguments, something about the value attached to individuality, to natural procreation, or to boundaries between what they


10. A Dutch introduction to the study of religion characterized a holy book as having a divine origin, and therefore being infallible, without internal or external contradictions, as well as complete, offering an answer to all questions on matters of principle. The authors then concluded that these demands are not satisfied by any holy book. I think all historians of religion can affirm this conclusion. Cf. Theodoor P. van Baaren and Lammert Leertouwer, *Doolhof der goden* (Groningen: Wolters Noordhoff, 2nd edn, 1980), p. 216.
consider ‘natural’ and ‘unnatural’. We may discover what is believed by the participants and what is dear to them.

This process of discovery may also reveal something more creative. It may be that expressions are not merely making explicit what was believed and felt all along. An interpretative process may have been going on, in which people created new answers to new challenges. Just as in the case of a hype in mass media, the process is not just recording what people think. Rather, to a large extent the process is shaping their responses. This may also be the case for responses to new technological developments and concerns. When invited to respond, humans create a basis, a framework for their responses. In such cases, they may be reforming their own tradition rather than drawing upon it. Hence, studying the use of religious notions in modern debates may teach us something about the dynamics of religious traditions, the ways in which they respond to and are transformed by modern technological possibilities. This creative dimension is even more characteristic, I would expect, for individuals whose tradition is less well defined by a particular institutional structure. Hence, studying public responses to technology is not only an opportunity to study the transformation of major traditions, but also a window into diffuse religiosity with its process of bricolage, drawing eclectically upon the resources of traditions.

Who Speaks for the Religions? Public Debates as Internal Disputes

Not only can we study public debates to get a deeper understanding of their dynamics, but we can also see how the public debate itself might be a forum for voices involved in the struggles within a tradition. An analysis should therefore not limit itself to the relationship between public debate and religious resources, but also take into consideration the struggle for a say in the future course of a tradition.

Let me illustrate this with two classic cases commonly understood as conflicts between religion and science, those of Galileo and of Darwin. The early controversy in which Galileo Galilei was involved in the 1610s began as a dispute between Galileo and other natural philosophers over the relative merits of scholastic resources and new empirical methods and technologies. It was at first an intra-academic dispute. However, one of the scholastic philosophers had a priest challenge Galileo’s view in a sermon as unbiblical. Hence, the Church interfered in a conflict at the university. The condemnation of Galileo Galilei years later, in the 1630s, can also be understood as the expression of an internal struggle within

11. Richard van Leeuwen’s analysis of a novel by Mahfouz makes clear the extent to which a literary novel is a voice in the transformation of the tradition from which it springs. Cf. Richard van Leeuwen’s contribution to the present volume (pp. 44-58).
the Catholic Church about matters of authority in exegesis, the power of various orders (Dominicans vs. Jesuits) and the significance of various geopolitical backgrounds (Spanish/Hapsburg vs. Italian). In both instances, what was later considered to be an archetypical conflict between religion and science, can be understood as a conflict between different parties on the same side of this divide, in which the relationship between religion and science was used as an argument.

Similarly, the dispute between Thomas H. Huxley and bishop Samuel Wilberforce over Darwin's evolutionary theory (Oxford, 1860) appears to be as much a struggle over the professionalization of science—between academic life as a pursuit of a financially independent upper class (Wilberforce) and academic life as a paid profession (Huxley)—as it was about religion and science. It may be noted that at the same meeting where Wilberforce opposed Darwin a sermon was given by Frederick Temple, later to become Archbishop of Canterbury, who spoke far more appreciatively of evolution as God's way of doing things. Thus the struggle over evolution was—and still is—not primarily one about science-and-religion, but one between different religious preferences, say, between those who accept modern culture (including historical scholarship, even of the Bible, and scientific knowledge) and those who reject modernity—not so much for its science, but for its impact on 'family values' and other existential concerns. The well-known controversies about abortion and euthanasia are not so much conflicts between religion and medical technology, as if these were coherent entities, but rather disputes between persons with different religious values and worldviews (including secular ones), with medical technologies serving as the arena. The same could well be said for disputes about genetic engineering and ecological responsibility: they are not so much examples of a contribution from religion to disputes about technology, as a way of using the debate about technology and responsibility to present and promote particular religious values, worldviews and lifestyles.

An interesting illustration of this phenomenon on a more global scale may be the differences in attitudes to organ donation in the United States and in Japan. William LaFleur has indicated how the Christian concept of love as agape, understood as love irrespective of personal affection, created in the United States a window of opportunity for a positive appreciation of organ transplants, quite distinct from the response in Japan. Similarly, Alastair Hunter has discussed these themes in the present volume (pp. 74-95).

12. See, however, Alastair Hunter's discussion of these themes in the present volume (pp. 74-95).

13. This also includes a variety of social milieus and mentalities, as Jonneke Bekkenkamp notes in her contribution to this volume (pp. 184-205).
Japan, where love is understood to be rooted in relationships.\textsuperscript{14} He thus seeks to understand differences in attitudes between the Japanese and the Americans on organ donation not as differences in knowledge of technology, but rather as different ways of understanding the meaning of love and relationships.

\textit{Which Dimensions of Religion?}

Figures of speech are not merely stylistic embellishments, but rather essential and unavoidable ingredients in communication and interactions with reality. Metaphors offer access to convictions and ideas, and shape and restructure opinions and experiences. In \textit{Metaphors We Live By}, George Lakoff and Mark Johnson speak of metaphors as 'concepts we live by'.\textsuperscript{15} Stewardship, for instance, suggests a less active role than viewing humans as 'co-creators', thus raising interesting issues regarding the understanding of God and the world. 'Playing God' is often invoked with negative connotations, but may be appreciated theologically as the proper way of 'playing human' in a perspective where creation is not considered finished and redemption or liberation is deemed more important than the conservation of an existing order.\textsuperscript{16}

'To improve nature' suggests that nature is not perfect. As such an example indicates, differences in vocabulary not only reflect disagreements about facts, valuations are also involved. 'Natural' or 'herbal' in advertisements is at the same time descriptive and appreciative—whether the link is justified or not. Speaking of 'random drift' in evolution is different from emphasizing 'fit' and 'development'. Particular understandings of human identity, of science and technology, of God and of culture are involved as well. In this section, I will first discuss aspects of religion that may be involved, before concentrating on three in particular, namely: values, worldviews and the ways in which these may be connected.

Eric Sharpe distinguishes four dimensions in religion, which I summarize here as the institutional, the experiential, the moral and the


\textsuperscript{15} George Lakoff and Mark Johnson, \textit{Metaphors We Live By} (Chicago: University of Chicago Press, 1980).

\textsuperscript{16} For more on 'playing God', see Jan Willem van Henten's contribution to the present volume (pp. 125-41).
metaphysical. Debates on technology can be analyzed in relation to each of those four dimensions.

Institutionally, debates on technology present opportunities for re-establishing authority. In his Preface to The New Faith-Science Debate, Paul Abrecht, a leader in the World Council of Churches, writes about a shift in the interaction of science and theology which took place around the middle of the twentieth century with the discovery of nuclear energy and its use in nuclear weapons:

In the earlier confrontation the fundamental issue was the clash between Christian belief and scientific knowledge, especially between the scientific understanding of the world and Christian views on creation. In that debate the churches were generally on the defensive... The contemporary encounter between faith and science is quite different from the earlier one... Today, as a result [of the rapid progress of modern science], science and science-based technology are on the defensive, and religious faith, speaking in the name of troubled and anxious humanity, has begun to ask questions about the consequences of the scientific world view.

The claim that the earlier discussion on 'the clash between Christian belief and scientific knowledge', and thus the challenge to the credibility of belief, has been replaced by a new one on the consequences of technology seems to me wishful thinking. To present oneself as an advocate of a 'troubled humanity' facing the social consequences of science and technology does not resolve the doubts one may have about one's intellectual credentials. Furthermore, those who seek guidance from faith may have good intentions, but they still have to account for their claim to moral authority. Claiming a role as advocate, to speak in the name of a troubled and anxious humanity, may seem to be addressing real world issues, but at the same time it is also self-serving. In the religious contribution to debates on technology, resulting in ethical committees and other structures, we do well to be alert to this institutional interest that accompanies the engagement with the issues at stake.

An experiential interest may be more prominent in non-dogmatic forms of religion, often with a mystical bent. With respect to the religious contribution to debates on technological creativity, this may well be the most immediate motivator. In ecology and the debates on genetics, yearnings for unspoiled nature—and with it a romantic understanding of 'the natural'—may be present. As a result, immediate responses to

change may be negative, not so much because of any moral principles or theological dogmas, but rather because it violates the way we would like to experience our world. New technologies (unlike the technologies of the nineteenth century, which are still appreciated) seem to promote estrangement.

Perhaps it is in relation to this experiential dimension of religion that the interpretation of ‘playing God’ given by Ronald Dworkin may be appreciated.\(^\text{19}\) In his view the negative connotation of ‘playing God’ reflects uncertainty with respect to the distinction between what we have to accept (whether due to nature, fate or gods) and what is determined by our choices and hence our responsibility (and therefore a matter of ethical discourse). If Dworkin is right, increasing familiarity with biotechnology would go hand in hand with a diminished use of religious metaphors in debates about the acceptability of biotechnology. Analyzing some diachronic developments may confirm or challenge such an interpretation.

Though institutional and experiential dimensions of religion are not to be neglected, I will concentrate on the theological dimensions, that is, the more reflective ones. Any theology (as a particular theological view) seems characterized by a view of the world and a view of the way things should be, or a cosmoslogy and an axiology, or a *worldview* and a *morality*.

Among the *moral* issues concerned, there is always a concern about distribution. Who profits? In ecological controversies, it makes quite a difference whether the circle of morally relevant subjects includes not only humans from our own region but also those farther away, or even future generations and/or other living beings. In debates on genetic modification it makes a difference if one has the ‘victims of nature’ in mind, in which case failing to invest in new medical technologies may almost be a matter of moral negligence,\(^\text{20}\) or whether one considers issues of food production and industrial control over pesticides and seeds to be the issue. Emphasizing ‘boundaries’\(^\text{21}\) or conservation brings in not only a different view of nature but also different values than emphasizing the task to help and cure wherever possible.

Among the issues of *worldview* that are relevant, both views of nature as well as of human nature may be taken into consideration. Here it is important whether nature is understood as static or as dynamic, whether

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\(^{19}\) Ronald Dworkin, ‘Playing God’, *Prospect Magazine* (May 1999); online at <http://www.prospect-magazine.co.uk/article_details.php?id=3934>.


\(^{21}\) For instance in the report of the major Christian-democratic party of the Netherlands, *Genen en Grenzen*. 
humans are part of nature or somehow considered as distinct, and with respect to creativity, whether human action is seen as diminishing divine involvement or expressing it.

Theological Explorations Regarding Human Technological Creativity

It is typical of religious views that moral and metaphysical convictions are somehow connected. The cosmological assertion that God is the creator of this world brings with it a view of the destiny and value of it all. Given such an understanding of the nature of theologies as combinations, harmonious or in tension, of a cosmology and an axiology, I shall consider here ways in which these cosmological and axiological discourses might be involved in discourses on technological creativity.

Human Technological Creativity and Biblical Resources

We not only appreciate technology; we are ourselves its creators. How may we articulate religiously this active side of the human presence? Within the ambiance of Christian thought, one finds reference to humans as stewards and as co-creators. To explore the difference between these two images, let me offer a simplistic Christian summary of the Bible, in a single sentence. According to the Bible, the world begins on high, with Paradise, followed by a long and troublesome journey through history, with the expectation of final salvation. The liturgy reflects this U-shaped profile in the emphasis on memory and on hope. This U-shaped profile implies that images of the good are present in two varieties, as images of the past (Paradise) and as images of a City of God, a new heaven and a new earth, the Kingdom to come. If humans are considered stewards, one looks back in time, to a good situation, which has to be kept and preserved. If humans are addressed as co-creators, the eyes are mainly on the future, on what might come.

In relation to human knowledge and creativity, some of the stories regarding Jesus may be illuminating as well. In the synagogue Jesus meets someone with a withered hand. Will he heal on the Sabbath? Then Jesus asks: 'Is it lawful on the Sabbath to do good or to do harm, to save

life or to kill?' (Mk 3.4). The priority is clear. In this healing story and in many other stories, a human is freed of the burdens of his or her past. A tax collector and a prostitute are again on the way to life, those possessed are set free and deaf persons hear. The social dimension, which can equally be found in the stories related to the prophets, is also present here. Especially those who were less well off are given new chances. Discipleship as serving the poor and needy has often been forgotten, but it has resurfaced again and again in the history of Christianity resulting in particular in care for orphans, widows and people who were seriously ill.

From this brief tour of biblical texts and images I would like to retain the following insights: (1) in biblical language, good is not only to be found in the past but in the future as well; (2) humans, even when considered as stewards (as in Mt. 25.14-30), can be active and even ought to be active although the initiative lies with God; and (3) this activity is normatively determined as care for the weak and needy. Any normative use of 'nature' might be related to a dynamic view of nature, which is 'by nature' a reality involved in an evolutionary process. Thus, any appeal to 'nature' should take into account that nature is not a well-defined given to be preserved. However, our involvement in the change of nature should itself be understood as responsibility for bringing about good—a good that may be understood with the help of biblical narratives about care.

Theology and Transformation

Stewardship has become prominent in the reflection upon the ecological damage that we have done. In that context, stewardship has the connotation of conserving nature. It is better suited to articulate the intention to defend nature than to justify activities that change nature. However, human activity is not only a threat to God's good creation. It has also been understood as taking up the work God entrusted to us. A theologian who has emphasized such human activity is Dorothee Sölle, in a book on the theology of creation entitled To Love and to Work: A Theology of Creation. She appeals primarily to church members who neglect the social engagement of the gospel, emphasizing our responsibility in the world. The more creative someone becomes in the project of liberation, the more God becomes God. In her book, The Redemption of God, Isabel Carter Heyward has used stronger words. God is not so much the one

who redeems us, as the one who needs to be redeemed. The suffering of innocent children ends for her any theodicy. We cannot shift the burden of responsibility to God; we are responsible. It is this insight that makes such a voice relevant in the present context, where we do not express moral outrage at extreme evil perpetrated by humans but reflect upon our technological powers.

Our task is to make God present in the world. Theology is not rooted in positive experiences of beauty and goodness, but rather in engagement with justice and love, a vision of this world made better. Rather than order, the central theological theme here is transformation. In natural theology, there is a tendency to appreciate the actual state of affairs as one deserving wonder. Natural theologies arising out of experiences with the natural world mostly lack interest in transformation; that explains why in the discourses of natural theology chemistry and technology are not as prominent as biology or physics. However, theology should, in my opinion, attempt to disclose the possibilities for transformation of the natural order. Unavoidably, this also introduces questions about aims, goals or norms—issues of values aside of facts, of axiology besides ontology. Not only natural theologies, but also a theology with a strong liberationist tendency and one which acknowledges the depth of the human technological ability to transform reality, require a metaphysics that is adequate relative to what we know and to what we find ourselves able to do. I do not have such a metaphysics and axiology, but want to indicate here that technology does raise issues for cosmology, for axiology, and for the way these two are combined in a theology or religious worldview.

With respect to cosmology, technology requires us to envisage not only the real but also the possible, not just order and laws but also flexibility (but not only flexibility, as technology is victorious over the laws by obeying them—think of flying and gravity). With respect to axiology, technology requires that we consider the expansion of the domain of choices, an issue to which we will return below. Focusing on technology can make us sensitive to elements neglected when we focus on science mainly as source of understanding rather than as a source of transformative power.

**Boundaries to 'Playing God'?**

Some people are concerned that we go too far in our technological activities; we are ‘playing God’. This metaphor has been used recently in debates on genetic modification and on cloning. Less than a century
ago similar images were used against those who put up lightning rods. Frederick Ferré tells the story of his father who in 1922, as a young boy in a farming community of Swedish immigrants in the USA, heard the preacher fulminate against the ‘shiny spikes of faithlessness’. ‘Thunderbolts were God’s to hurl, not man’s to deflect. The fires of hell, deep under the earth on which the congregation now sat and quaked, were even then being stoked for those who insisted on rising in rebellion against God’s will by installing newfangled lightning rods. Amen.’

Even if one had no doubts about hellfire, there seems to be something deeply confusing about such a sermon:

Could God’s will truly be foiled by a steel rod and a grounding wire? Was it really wrong to protect family and livestock from the storms that swept in from the prairies with such seemingly undiscriminating force? ... Should he believe that the God Jesus called ‘our Father in heaven’ really would punish farmers for taking whatever meager technological precautions might be available?

Even non-believers find ‘playing God’ a useful metaphor to criticize new technologies. Ronald Dworkin suggested that this is because those new technologies do not merely raise ethical issues, but create insecurity by undermining a distinction that is vital to ethics. Underlying our moral experience is a distinction between what has been given and what is a matter of choice and responsibility. What is a given is the stable background of our actions. Traditionally this has been referred to as fate, nature or creation: domains of the gods or of God. We assume a clear demarcation between who we are, whether the product of divine providence or of blind chance, and what we do in the situation we find ourselves in. When new technologies expand the range of our abilities, and thus shift the boundary between what is given and what is open to our actions, we become insecure and concerned. It is especially in such circumstances that the phrase ‘playing God’ arises. There is a reference to ‘God’ when something that was experienced as a given becomes part of the domain of human considerations. We accuse others of playing God when they have moved what was beyond our powers to our side of the boundary. The fear of ‘playing God’ is not the fear of doing what is wrong (which is an issue on our side of the boundary), but rather the fear of losing our grip on reality through the dissolution of the boundary. Dworkin argues that this fear is not necessary; humans have always played with fire, and we ought to do so. The alternative is, still according

28. Ferré, Hellfire and Lightning Rods, p. 27.
to Dworkin, an irresponsible cowardice of the unknown, a weak surrender to fate.

New technologies imply a different range of human powers, and thus a changing experience of fate, nature, creation or God, at least if God is associated with that which has been given, identified with creation. If God is viewed this way, our technological activity will be interpreted as pushing God back to the margin. Antibiotics and contraceptives have contributed more to secularization in Western cultures than Darwin; practices are thus more important than ideas. This God who is pushed to the margin, is a god-of-the-gaps, not so much the gaps in our knowledge as the gaps in our skills.

**Theism and Naturalism**

If we do not accept this god-of-the-gaps, how do we then proceed? Theism with its root pair of metaphors of power (on the side of the transcendent God) and dependence (on our side) is challenged to rethink itself in the light of the powers we have acquired. Naturalism, however, faces a different challenge. In operating mainly on the basis of 'what is', a strictly naturalistic philosophy faces problems in articulating normative ideals. In the present context, the concern is not the derivability of norms from facts. That would be an 'epistemological' issue, of how we can have knowledge of, or legitimize, certain norms. This is often referred to as 'the naturalistic fallacy', the logical impossibility of deriving norms ('ought') from facts ('is')—a fallacy that may arise in ethics and in epistemology.

My concern here is not of this epistemological kind. One may well reject the naturalistic fallacy (as a pattern of reasoning) and still appreciate this world as 'the best of all possible worlds', believing that this dynamic reality is deep down good or sacred— as seems the case for most 'religious naturalists' and secular colleagues. 'Religious naturalism' emerges in relation to debates about sources of knowledge (rejecting appeals to special revelation or uncontrollable personal intuition) and the ultimate nature of reality (rejecting supernaturalism). It is not articulated primarily in relation to the appreciation of reality—as both an optimist and a pessimist may be naturalists. An optimist may say: 'I believe that this is the best of all possible worlds'. A pessimist replies: 'I am afraid you may be right'. However, those naturalists who side with the pessimist in acknowledging the reality of imperfections and evil, and


31. For example, Ursula Goodenough, The Sacred Depths of Nature (New York: Oxford University Press, 1998); Rue, Everybody's Story; Wilson, Biophilia.
who acknowledge the desire to improve rather than merely to affirm 'nature', must distinguish between what is given and what is normative. In that case, we (as my preferences lie here) need to think through the possibility of an 'anti-naturalist religious naturalism': 'religious naturalism', since the ontology is not shaped by a dualism of the natural and the supernatural, but 'anti-naturalist' in that a dualism of facts and norms, of what is and what should be, is deemed essential in moral evaluation.

If we shift the vocabulary again and draw upon Christian heritage, a similar variety of attitudes may be articulated. Stewardship may be interpreted as a call to conserve this world — which then is appreciated as the best of all possible worlds, just as in the arguments of natural theology. However, in the biblical traditions God is also associated with a vision of a Kingdom of peace and justice, a city of light and glory, where death will be no more. Images of redemption and liberation are integral to a Christian understanding of God. In that light humans are not merely stewards who are to keep and preserve what has been given. They are also addressed as persons who should abandon their old ways, and take the risk of living in a new way as they are called to renew themselves and the world.

In the Christian tradition there has been from its very beginning a tension between the focus on God as creator — and thus on the world as a God-given created order — and on God as the gracious, loving Father of Jesus Christ, who longs for the renewal of the world. Distrust of technology springs from an emphasis on the given; but technology could be part of a Christian calling. Sensible 'religious naturalists' might share this responsibility by not treating the given as normative, but thinking through the possibility of an 'anti-natural religious naturalism'.