Techno-demonology: Naming, Understanding and Redeeming the A/Human Agencies with Which We Share Our World

Bronislaw Szerszynski

Senior Lecturer, Institute for Environment, Philosophy and Public Policy, Furness College, Lancaster University, Lancaster LA1 4YG, UK
bron@lancaster.ac.uk

Abstract

In this paper I argue that an important strand of ecotheology should be an articulated techno-demonology—an understanding of the ways that technologies increasingly confront us as indifferent or malign agencies. Drawing particularly on the New Testament language of spiritual agencies, I consider in turn three necessary components of techno-demonology. First, techno-demonology needs a taxonomic nomenclature, one which ‘names’ techno-demonological phenomena in a manner that reveals the specific ways in which the technologies can stand before us as autonomous powers. As a contribution to this task I distinguish between elementals (stoicheia) and powers (dynamis) — between technical systems which have become treated as ends in themselves, and have thus started to control human action, and technologies whose unanticipated side-effects overwhelm their intended purposes. Second, I suggest that techno-demonology should include an understanding of how such techno-demons arise; I thus give historical explanations for the proliferation of technological elementals and powers in the contemporary world. Finally, I argue that techno-demonology should include the redemptive task of restoring technology to its rightful place in creation.

* I owe many thanks to Peter Manley Scott, Maureen Junker-Kenny and Neil Messer for their part in conversations which have greatly assisted me in developing the ideas in this paper, and to Celia-Deane-Drummond and Robin Grove-White for their continuing warm encouragement of this area of my work. I must also thank participants at the conference ‘Fabricated Nature? From Global Ecology to Biotechnology’, held at University College Chester, 9 July 2004, at which an earlier version of this paper was presented and prompted extremely useful discussion. Thanks are also owed to Linda Woodhead and Fraser Watts for suggesting further reading.
For most of human history, people have understood themselves as sharing the world with other agencies—powers, neither human nor natural, with which they must interact and make common cause. Once, as far as we can tell, all of humanity experienced the world in much the same way that surviving hunter-gatherer societies do today. For such societies the world is typically experienced as a unified sacral cosmos, with no clearly distinguished realms of the human, natural and supernatural; ancestral figures, tutelary deities and other spiritual presences are understood as powerful actors within the world, and as requiring ritual placation to ensure continuing human well-being. Then, once the archaic polytheisms of cultures such as Greece and Rome emerged, pantheons of deities were seen as standing behind the complex array of cults and priesthoods into which such societies were ordered. And even the monotheisms of Hebrew, Islamic and Christian religion typically found a place in the created cosmos for supernatural agencies such as angels and demons. So it is perhaps only in the context of modern, post-Enlightenment society that we find a culture in which belief in such agencies is seen as pathological. And for some ecological critics of modern society (e.g. White 1967) it is the very evacuation of these supernatural agencies from nature that laid it bare for technological exploitation and destruction.

But what if the rise of modern technology made possible by this disenchantment of nature has itself brought into being another set of agencies? In this article I will argue that one of the principle elements of ecological theology, and of the theological exploration of the modern technological condition, should be an articulated *techno-demonology*. Through using this neologism I mean to suggest that by regarding at least some technologies and technological phenomena as *agencies*—as forces which operate on the natural and human world that are *neither* natural *nor* under human control—we can come to a better theological understanding of where our relationship with the practical arts and their products has gone wrong, and how we might restore them to their rightful place in creation.

In linking technology with the demonic I am not simply referring to the way that technology extends the ability of human beings to do evil as well as good. I want to focus on a stronger sense of technology being ‘demonic’—the idea that technology itself can at times be an agency that lies beyond human steering. Without an awareness of this dynamic, I want to suggest, an adequate understanding of the modern technological condition will elude our grasp. But neither should I be taken as saying that any technological power is intrinsically evil. A Christian position on technology, I will argue, must insist that the runaway nature of modern technology, with all the hazards which this produces for both human and nonhuman life, is a contingent rather than a necessary feature of our
existence as embodied beings, beings who are necessarily practically engaged with the material world. The present derangement of the proper relationship between human and technological agency can, in principle, be overcome.

In the article I will be using ‘technology’ not simply to refer to particular material technologies, such as mobile telephony, nuclear power generation or agricultural biotechnology, but also to any artificial technical system which operates through finding the most efficient means to any end. Bureaucracy and markets are technological in this sense, although they are immaterial and operate through humans and their actions. Even modern technologies such as the television or motor car, which might seem like isolated material devices, are best seen as complex technological systems, as interlocking set of devices, sciences, institutions, legal and financial structures, ways of thinking and so on (Bijker et al. 1990). Technologies, in this widest sense, incorporating devices and techniques, tools and systems, can cease to operate merely as secular means to ends, and start to impose their own purposes on the world. And at this point, if not before, they become relevant to techno-demonology.

In the rest of the article I explore three elements that I suggest are necessary for a techno-demonology—the descriptive task of categorizing and naming the technological agencies, the theoretical task of understanding their nature and origin, and the practical task of determining and enacting our proper relationship with them.

First, then, I argue that techno-demonology must involve the naming of technological agencies—the developing of a nuanced account of the range of different kinds of techno-demons with which we share our world. We already have a number of different terms for technologies—tools, devices, techniques, methodologies, apparatuses, robots, and so on. However, what we need for techno-demonology is a taxonomy that focuses on the various ways in which technologies can be seen as achieving their own, radicalised autonomy, thus usurping their place in the ongoing performance of a meaningful human world. As a contribution to this task, in the first section of the paper I focus on delineating two great divisions of techno-demons. Adapting to our contemporary technological situation the New Testament language of spiritual agencies (Morrison 1960; Wink 1984, 1986, 1992), I delineate ‘elementals’, experienced as in control, as autonomous systems driven by their own internal rationality and detached from human projects and happiness, and ‘powers’, perceived as out of control, as proliferating unintended consequences which confront us as hostile forces.

I then turn to the second, more theoretical and historical task of technodemonology—that of understanding the nature and origin of
these technological agencies. If the modern world is pervaded by technodemons, how have these arisen? I locate the rise of technological elementals in the emergence of ‘technology’ in the modern sense as a religious and fundamentally idolatrous ideology promising to liberate humanity from the contingency and finitude of creaturely existence. I then turn to the technological powers associated with environmental risk, following Hannah Arendt by suggesting that contemporary technologies have replaced fabrication with action as their primary mode of engaging with nature, setting off irreversible chains of events that confront us as unrecallable agencies.

Finally, I turn to the third task of techno-demonology—that of discerning the proper relationship between human and technological agency, and how that might be restored. Techno-exorcism, I suggest, does not consist in the ejection of technology from the social body, a rejection of its agency. To think about the demonic in a Christian or post-Christian context requires us to see such agencies as fundamentally good, as allied to divine purpose, but as fallen. The final task of techno-demonology thus involves finding ways to restore technology to its rightful place in the economy of human—and ultimately divine—intention.

1. Techno-demonology as Taxonomy

The first task of a techno-demonology, I suggested above, is that of taxonomy. The act of naming is an essential part of understanding the agencies with which we share the world. And here, I want to suggest, the most important task is to name the techno-demons in a way that reveals the nature of their power in relation to human purpose and design—the way that they might at times master us as a demonic force, rather than play their allotted role in projects and activities.¹ Such activities require an assemblage of people and things, one in which agency is made possible, shaped and distributed in orderly yet open-ended ways amongst humans and nonhumans (Law 1991: 8-10); For example, Bruno Latour describes the various ways in which responsibility can be effectively distributed between humans and technological nonhumans over such social problems as ensuring the return of keys before leaving a hotel, or that a door in La Halle aux Cuirs in Paris is closed after use during a cold February (Latour 1991, 1992). Yet the stabilizations of relations between humans and artefacts do not always take the form of such convivial collaborations between creatures; we thus need ways of naming demonic deviations from harmonious sociotechnical existence.

¹ For an alternative, secular, account of ‘autonomous technology’ see Winner (1977).
This task of nomination is one that cannot be fully carried out in the space of these pages. But what I want to do as an indicative gesture is to name two important groups of techno-demons—two ways, that is, in which technologies frequently stand before us as a/human agencies beyond our control. The first, I will suggest, occurs when technology seems to succeed in securing the future, in imposing certainty on our dealings with nature; the second manifests itself when it fails to do so, at the point in which technology at once exceeds and finds its limit, affecting the future in ways which escape technological control.

The first kind of techno-demon I want to give a working title of stoicheion or ‘elemental’. In the New Testament the elementals are stoicheia tou kosmou, the elements of the universe; they are a personification of the basic building blocks, principles or laws of existence (Wink 1984: 67-77). For example, in Paul’s Letter Col. 2.8, when he warns: ‘[b]eware lest any man spoil you through philosophy and vain deceit, after the tradition of men, after the rudiments of the world, and not after Christ’, the rudiments of the world he refers to are stoicheia. I want to suggest that a technological elemental takes form when basic principles of existence become treated as ends rather than means and used to orient life: when technique becomes such a dominant form of acting and thinking that it becomes an autonomous, self-determining system.

Gary Banham points out that, whereas the Babylonian and Greek gods are identified with fate, the angels of Judaic, Christian and Islamic monotheism are free beings. However, following Massimo Cacciari (1994), Banham suggests that the freedom of the angels revolves forever around ‘the point where the split between their ranks opens between the decision for God or for Satan’. Satan’s free act of rebellion at the same moment ensures that he is divided from himself, becomes a mere bundle of active principles, and thus ‘non-free or fated’. The rebellion of the angels thus reverberates through history as a new instauration of fate; monotheism’s promise to overcome the fatedness of archaic, pagan cosmologies is compromised, and history becomes reduced to ‘unending catastrophe’ (Banham 2000: 14, 17). I want to suggest that elemental techno-demons can also be understood in terms of this dynamic—as a bid for freedom by technology which in the same gesture separates it from its socio-technical milieu, transforming technology into a species of fate.

The master theologian of this form of the techno-demonic is Jacques Ellul. In *The Technological Society*, Ellul seeks to capture the way that technique can sometimes become ‘self-directing’, a closed, self-determining phenomenon. In such a form of autonomous technology, technique becomes an end in itself, in which each component is functional, adapted not to specific ends but to the needs of a technical system (Ellul 1964:...
79-147). Under such conditions, no concrete individual steers the technological process; rather than individuals being the wielders and directors of technology, they are ‘responsible only for seeing that the technical act is done correctly’ (Daly 1970: 419, 420).

In such a context, technology, or in Ellul’s terms ‘technique’, becomes experienced as an a/human agency, and one that is at best blindly indifferent to empirical, real human projects and happiness—however much it might operate in the name of protecting or optimising humanity in general. For example, the motor car, offering us unrivalled mobility and autonomy, locks us all in to patterns of living and working and impacting on the environment over which we are all but powerless. Farmers are impelled to embrace new technologies not in order to serve the non-technical ends of human, natural life, but because of the impersonal forces of market competition. New reproductive technologies, offering us new opportunities to optimise the life-chances of our children, take on a de facto compulsoriness in a meritocratic society. In each case, rational technical principles cease to operate simply as quotidian means within the social order, instead starting to shape the ends of life itself.

The psychiatrist, Robert W. Daly, uses the term ‘spectres of technology’ to capture this form of the techno-demonic, in which technological systems can be experienced as imbued with quasi-supernatural agency and power (Daly 1970). For Daly, belief in such spectres arises from ‘a sense of domination by mysterious agencies or forces which are, or were, linked to technological enterprises but which are now apprehended as being beyond the control of any particular man or collection of men’ (Daly 1970: 421, emphasis in the original). Daly illustrates the different form such spectres can take using case studies from psychopathology, but he suggests that belief in technological spectres is widespread amongst psychologically normal individuals, and is passed down through conventional processes of cultural transmission. But rather than follow Daly and see belief in stoicheia as a widespread psychological illusion, it could be argued that it is wholly reasonable. We do indeed seem to share our world with technological systems that are not just instruments of human goals, but shape the lives and even the goals of human individuals.  

While Ellul will be an important guide for us in our exploration of the techno-demonic, one criticism that might be levelled at his analysis is that he over-estimates the capacity of technology to deliver its promise of eradicating contingency and the need for judgement. For Ellul,

2. Indeed, perhaps it is the belief that technology always functions solely as an instrument, as a means to an end, which ought to appear wholly unreasonable and thus to be explained psychologically.
technique is ‘the totality of methods rationally arrived at and having absolute efficiency… in every field of human activity’ (1964: xxv, emphasis in the original). Yet here Ellul could be accused of having been dazzled by the more extreme claims of technologists to be able to secure the future through technique. In recent decades we have become more aware of the way that the intended outcomes of technological interventions can become crowded out by their unintended effects. The use of thalidomide to relieve sickness in pregnancy, of chlorofluorocarbons as propellants in aerosols, of fossil fuels to generate energy: in so many cases, technologies create the future behind the backs of the technologists. Ulrich Beck (1992) tries to capture this situation as a gestalt by suggesting that we now live not in industrial society but ‘risk society’, in which technological risks have become the key organizing factor in society. Where earlier, industrial society was organized around the problem of the distribution of goods, in contemporary society the key question is that posed by the distribution and avoidance of risks or ‘bads’. Unintended consequences have become the norm rather than the exception, and the management of risk is dominated not by the quest to secure knowledge but by the task of coping with ‘non-knowledge’—of finding how to deal with ineradicable uncertainty, indeterminacy and ignorance.

Here we are dealing with a very different form of the techno-demonic, one which I propose to call dynamis (pl. dynameis). The term, often translated as hosts, forces or powers, has a range of meanings in the New Testament and other writings of that period, but there are two such meanings that I think recommend it as a term to be used in this way. In Mk 6.14 the term is used to refer to the spirit of a dead person—here, John the Baptist. Elsewhere, and especially in the work of the Neoplatonist Philo, dynamis indicates an emanation, a semi-autonomous potency of God (Wink 1984: 160-61). As Barth argues, the angels are not emanations but creatures of God; yet they belong to God alone, while earthly creatures also belong to themselves. Thus, ‘when an angel appears and is and speaks and works, God himself appears and is and speaks and works’ (Barth 1960: 480). And rather as angels extend God’s powers, technologies extend human powers—in Marshall McLuhan’s phrase, they are ‘the extensions of man’ (McLuhan 1964). However, technological dynameis can become demonic, when the technological extension of human powers has an after-life, producing effects which escape both the original intentions of the apparent designer or wielder of a technology, and the original action-context of its application.

So this second form of the techno-demonic is not, as it was above, encountered in the experience of being determined by a system governed predictably by its own inner logic, but in that of encountering a
technology, such as biotechnology or nuclear technology, which sets off unpredictable chains of consequences. Here we seem closer to the experience of the pre-Christian demon, the mysterious supernatural presence that according to Rudolf Otto ‘loiters in the secret dread of hollows or caves…calling forth the sense of awe, the numen of the deserts and of regions of terror, of the mountain and the ravine, of haunted places and of overpowering natural phenomena’ (quoted by Proudfoot 1985: 64). Here, technology is experienced not as a deterministic system, but as a capricious agency.

Let me give you an example of a dynamis from a traditional society, the austronesian Yami people of Orchid Island, Taiwan. Orchid Island has been the site of the main repository for nuclear waste in Taiwan for the past few decades, and the Yami perceive the nuclear waste as an ‘evil ghost’. In Yami culture, evil ghosts are spirits of the dead — malevolent presences encountered around a house where a death has occurred, or near to graves — and can appear as rats or large butterflies. Most misfortune in Yami society is attributed to evil ghosts, and prompts an exorcism: after the death of an individual, for example, the Yami plunge spears around the house of the deceased; at the outbreak of a fire or illness, they similarly use rituals to repel the presumed ghost (Kwan 1989). The Yami tend to blame the nuclear waste for almost all negative life experiences they have experienced since the repository was constructed on Orchid Island in the late 1970s: poor harvests, water and soil contamination, decrease in the amounts of crabs and fish, the whitening of the coral, higher rate of cancer and other illnesses (Fan 2004). For them, nuclear waste is a dynamis — a malevolent technological agency which is encountered where a technology no longer stays put, securing the future as intended, but instead extends its powers across the social and natural landscape in unpredictable ways.

2. Techno-demonology as Aetiology

We have now named two broad classes of techno-demons, stoicheia, and dynameis. But a second task for techno-demonology is to theorise the techno-demonic. Once again, this task is impossible to comprehensively execute in the space I have here. Instead, I will focus on exploring the aetiology of stoicheia and dynameis. In particular, I want to ask why it might be that these kind of techno-demons are as widespread in contemporary experience as seems to be the case.

So, first, how have the products and processes of the practical arts become capable of presenting themselves as elementals — as machinic agencies beyond human steering? Here, the origins of the very term
'technology' are revealing. The term combines *techne* (pl. *technai*), craft or art, with *logos*, reason or speech. The ancient Greeks rarely joined the terms together, and never to mean what we would mean by technology. For classical thinkers *techne* provided an inferior kind of knowledge than that promised by contemplation, because of its concern with particulars rather than universals, and with changing rather than unchanging things. And at that time the *technai* were regarded as separate crafts with no overarching set of general principles, and as intrinsically uncertain and unpredictable in their outcomes. This was partly to do with the almost animistic classical conception of matter as having its own desires, its own *telos*. To manufacture an object, to combine form with matter, involved not just imposing a form on matter but cooperating with matter, almost conversationally, so was not reducible to formal principles, and thus had to be learnt through experience (Mitcham 1994: 118-23).

With such an understanding of the practical arts, what we are calling elementals were necessarily kept in their rightful place within the ongoing community of humans, nonhumans and artefacts. But after the Reformation we see the rise of ‘technology’ in the modern sense, as a project of reducing the arts to universal methodological principles—of finding the *logos* of *techne* itself, of overcoming the recalcitrance of matter and making it subservient to *logos*. Such a framing of the practical arts had its own inherent theological framing, as a soteriological project. From Francis Bacon’s *Advancement of Learning* ([1605] 1960) onwards, technology was conceived as a project to bestow upon the practical arts the certainty that was characteristic of reason itself, and thus to liberate humankind from finitude and necessity, allowing it to share in the unconditionedness of a deity understood in increasingly sublime terms (Noble 1999; Song 2003). Technology thus became a form of idolatry, by making the technical mode of thought and activity the master and measure, rather than the servant, of human and natural flourishing. And this idolatry—itself, ironically, part of the Enlightenment project of delivering humanity from bondage to supernatural agencies—gave form and power to new forms of a/human agency which have come to threaten human freedom.3

The very inferiority of technological artefacts in the classical view had meant that the danger they posed was always constrained. Unlike natural objects, they had no inherent purpose, so could not impose this purpose on their users; the worst that might happen was that the user,

---

3. See Latour (1993) for an illuminating account of the way that the very Enlightenment attempt to purify the world into distinct realms of nature and society allows the proliferation of hybrids and ‘monsters’ which straddle that divide.
like Icarus, would be dazzled by the very means and thus forget to reflect about the wisdom of applying it. Matter was *agnosis*, non-rationalizable, and traditional *technai* were tentative activities located in the context of a non-technical understandings of human flourishing, incorporating ideas of beauty, justice and contemplation. But with modern technology, human activity was brought into the realm of ‘clear, voluntary and reasoned concepts’ (Ellul 1964: 20). The ends-context of any specific technological application *itself* became construed in technical terms, so that there was no non-technical context to which technology was understood as subordinate. The very sublime unconditionedness of modern technological systems thereby allowed them to offer a form of this-worldly salvation by removing uncertainty from human affairs—but a salvation that in practice has arguably subtracted from human freedom as much as it has added.  

*Stoicheia*, elementals, then, become demonic when they are elevated from their lowly position as basic principles of the universe, and thus as guides to practical action, and are instead treated as lords and masters. *Dynamis*, by contrast, emerge when technique finds its limits and the effects of agency are no longer bound by technical rationality—and are in that sense no longer solely human—but spill out in unpredictable ways. Under such circumstances, such as ones involving environmental or technological risks, people once again get the sense that they are being confronted by an agency which exceeds the control of human beings. But with *stoicheia* it was the technical framing of action in terms of efficiency, of matching means to ends, that made technology sublime, beyond human purpose.  

If I am right that not just technological *stoicheia* but also *dynamis* have proliferated in our modern world, why should this be so? One way to answer this would be to build on Hannah Arendt’s idea of ‘acting into nature’. She suggests that whereas traditional technologies are based on the activity of making or fabricating—taking something out of nature and imposing a form on it—with new technologies the primary mode of activity is not making but *acting*, with the effect of increasing rather than

4. For a broadly compatible analysis of the emergence of modern capitalism as the idolatry of exchange value, and the displacement of God by Mammon, see Goodchild (2002).

5. In the sense that it is only technical reasoning which guides technology, not any non-technical human end or judgement.
decreasing the animacy of matter. Arendt distinguishes labour, work and action as activities. As animal laborans, labouring and consuming animals, humans engage with ‘earth’, in the constant never-ending process of the meeting of physical needs. But humans also have the capacity to create a ‘world’, an ensemble of human artefacts that can form an enduring setting for human affairs, through work, a goal directed activity that leaves behind itself lasting artefacts. The world is carved out from the earth, by taking materials out of the cycle of growth and decay and converting them into enduring, useful and meaningful tools and objects. Finally, within the setting of this ‘world’ humans engage in action — speech and meaningful gesture, making possible self-disclosure, mutual recognition and remembrance. Action is not transitory and repetitive, like labour; but neither does it leave behind a physical product modelled on the blueprint that guided it, like work. Rather, because of the nature of human beings and relations, action sets into train unpredictable and irreversible effects, spiralling away from the actor’s control (Arendt 1958).

Arendt argues that with new technologies humans are starting to ‘act’ into nature — to introduce into our relations with the natural world the characteristics of unpredictability and irreversibility that characterize interactions in the human social world. Rather than being organized around the activity of creating durable objects on the basis of a pre-existing model or idea, many contemporary technologies, relying on the human capacity to ‘act’, to create radically new elements, organisms or life processes, result in the initiation of unpredictable, irreversible processes that generate new kinds of uncertainty in the human relationship with the natural world (Arendt 1958: 231-32).

But it is not just the specific technical characteristics of new technologies which makes them productive of unpredictable and irreversible effects. The shift towards acting into nature has also been strengthened by a transformed relationship between science, technology, politics and commerce. With scientific knowledge playing such a central role in the activities of wealth creation and governance, the boundaries between science and other domains have been eroded, and knowledge is increasingly generated in the context of its very application (see Gibbons et al. 1994; Nowotny et al. 2001). As Bruno Latour puts it, the cold, detachment of ‘science’ has given way to the warm, risky, engagement of ‘research’ (Latour 1998, cited by Nowotny et al., 2001: 2). In such a context the boundary between science and technology, between experiment and application — always impossible firmly to maintain — has become even harder to draw, and contemporary technologies are in effect tested in the field, resulting in what Wolfgang Krohn and Johannes Weyer call ‘real-life experiments’ (Krohn and Weyer 1994).
The classical, bounded laboratory operated as a space of fabrication which provided the conditions for the creation of knowable phenomena (Hacking 1983: 220-32), and the scientist worked as *homo faber*, knowing through making, recreating nature within the experiment. By making nature, he sought to glimpse the ‘model’ by which it was made, to grasp the natural law underlying the process whereby nature had come into being (Arendt 1958: 297, 295). But under the contemporary conditions described above, as the experiment is moved *outside* the laboratory, scientific knowing shifts from ‘making’ to ‘acting’ as its practical template, and experiments produce un-recallable effects at the level of both materiality and discourses which escape human control and prediction. Knowing nature thus becomes much more provisional: nature comes to be known not as a fabricated object is known, but as we know a participant in a dialogue. Human acting can thus incite nature (or parts of nature) into action-hood, transforming our interactions with it into a ‘conversation’. And it is in the logic of conversation that we do not ‘know’ an interlocutor as something we have made; instead, they are an actor with which we are bound in an unfolding interaction.

In his latest work, *The Future of Human Nature* (2003), Jürgen Habermas makes a distinction between the grown and the made. He argues that traditional forms of technical intervention into nature such as cultivating, healing or breeding, have in common with meaningful action between human beings the need for respect for the auto-activity of the other if they are to succeed. For Habermas, following Hans Jonas (1985), it is only with inorganic matter that we can really ‘make’ things, fashioning them according to our will; wherever we encounter life, and even rudimentary subjectivity, there is both a technical and ethical imperative to accommodate to the inherent functioning of the organism. Habermas’ worry about human genetics is that we will start to ‘make’ other humans, by choosing their characteristics — and for Habermas to ‘make’ someone else is to undermine their capacity as an autonomous agent (Habermas 2003: 44-53). Yet it is interesting that looked at through the prism of environmental risk we seem to be seeing the reverse problem—not so much acting displaced by making, as making displaced by acting. Once our technologies were ones of fabrication; we designed things, made them, embedded them within a meaningful sociotechnical context, and they more or less did what they were supposed to. But now our technologies set off chains of events — create techno-demons. Even the splicing of a gene is not wholly contained by the logic of fabrication, that of a model being imposed onto matter, since we cannot be certain what the effects of inserting a specific gene might be. We act, and the effects of our action spiral away in the form of *dynameis* — at once extensions of our
own powers to alter the world, and reminders of our inability to stay and control them.

3. Techno-demonology as Redemptive Practice

In the first two sections of this article I have respectively suggested how we might name some of the techno-demons with which we share the modern world, and how we might historically account for this state of affairs. But as I said at the beginning of the article a third and no less necessary task of techno-demonology must be to determine how to be towards the techno-demonic.

Indeed, the task of naming is always more than merely attaching an arbitrary linguistic label to objects in the world; it is also performing relationships into being. Just as Adam’s naming of the animals can be seen as performatively bringing into being the relationship between human and nonhumans (Hearne 1987), so too can the wise naming of technologies help us to discern and enact our proper relationship with them. However, there is still more work that must be done before the nature of the practical task that confronts us starts to become clear. In particular, I want to ask how the Christian theological tradition might suggest we think about the agencies I have been describing above. How should we act towards them? In this task we are greatly assisted by Walter Wink’s monumental *Powers* trilogy, in which he explores the New Testament language of angels, demons, principalities, thrones and elements in ways which see them not simply as survivals of non-monotheistic religious thought, but as integral to Christian theology and practice (Wink 1984, 1986, 1992).

Wink suggests that we should regard such powers as the essences of our worldly existence, the ‘inner aspects’ of material and social reality. So, for example, the angels of nature are the patterns of the physical world, the principalities and powers are the spirit of institutions, the demons are the energies of individuals or institutions bent on dominating others, and so on (Wink 1984: 184-85). And Wink also insists that the powers are both good and bad — hence the New Testament preoccupation with the need to discern the difference. However, in Christian thought the powers are created good — it is just that many are fallen, no longer serving the purpose of God. The powers can be redeemed; the powers are servants of God and Christ, and need to be recalled to their proper role.

What might be involved in this in the case of technological agencies? Let us first look at my first kind of techno-demons, those *stoicheia* unleashed by the hypertrophy of reason, the elevation of technique over
all other modes of acting and discernment. For Ellul, there is nothing inevitable about technology becoming autonomous in this way, and thus the generation of elementals. Ellul himself insists that modern technology is nothing more than the result of a stake or bet—*The Technological Society* (1964) was originally published as *La Technique: L’enjen du Siècle* [Technique: The Stake of the Century]. Technology for Ellul is nothing more than a gamble made by modern humanity—the gamble that it would be better or even possible to replace the ‘natural attitude’ towards objects with a technological attitude (Mitcham 1994: 60). Ellul thus insists that, however much technology escapes our control once we have made—and some might say lost—this bet, this loss of control was not inevitable. The mythical moment of this ‘stake’ thus plays the same role in Ellul’s account of the becoming-demonic of technology as does the Satanic rebellion amongst the angels in Cacciari’s account of history: an act which is at once free and the point of entry of a new and pernicious species of fate into the world.

But the positive message here is that the development of the practical arts need not lead to a situation where human autonomy is over-mastered by technological elementals. The gamble described by Ellul was a voluntary act of idolatry—the elevation of a system or institution to an end in itself. An example that Wink gives concerns the elementals, *stoicheia tou kosmou* (Wink 1984: 67-77).

Beware lest any man spoil you through philosophy and vain deceit, after the tradition of men, after the rudiments of the world [*stoicheia tou kosmou*], and not after Christ.

As we saw above, St Paul wrote to the Colossians (2.8) to warn of those preaching philosophies based on knowledge of the elements, and would, I feel, have written a similar letter to those today who elevate technique to an end in itself. The technological mastery of nature, as Bacon observed, means the following of nature in order to command it—a form of idolatry which sets the lowest in the place of the highest, and unleashes the elemental forces of autonomous technology. But this kind of the techno-demonic can be redeemed, brought to God’s purpose, by discovering what Heidegger (1977) called a ‘free’ relation with technology, re-embedding technical systems within non-technical values and purposes.

And what about the second form of the techno-demonic—the unrecallable *dynamais* of technological risk? I want to make two remarks about these techno-demons. First, I want to propose that in significant ways *dynamais* reveal the identity of the technological actors associated with them. Arendt herself makes the point that it is in *action*—speech
and gesture—that we reveal to others not just what but who we are. We are never the authors of our own stories, but actors within them; and we can never by ourselves know who we are. Arendt illustrates this point by reference to the Greek idea of ‘the daimôn who accompanies each man throughout life, who is his distinct identity, but appears and is visible only to others’ (1958: 192-93). Applying such ideas to technological dynameis, I would argue that it is not just through acting into the web of social relationships, but also through acting into nature, that humans reveal who they are. With such an insight, it might not appear so irrational for publics, whether in Orchid Island, West Cumbria, or anywhere, to see technological risks as ‘ghosts’. Technological dynameis are in some sense ghosts, emanations or extensions of being—the daimōnia of those responsible for the technologies concerned.

According to the procedures of formal risk assessment, risk is a purely technical phenomenon, to be approached through the scientific calculation of the probability of harm. With such an understanding of technological and environmental risk, the public are often represented as ignorant and irrational in their approach to risk, as if they are diverted away from an accurate assessment of risk by irrelevant contextual factors, such as degree of control, familiarity, perception of fairness and so on (Jaeger 2001: 104). But once we see the techno-demonic as the result of action into nature, and recognize that action reveals who we are, then it is not unreasonable to judge such risks in a different way. Recall John Ruskin’s prophetic tract the Storm Cloud of the Nineteenth Century, which used the phenomenon of atmospheric pollution as the basis for a biblical, prophetic onslaught on modern, technological existence. Before we can purify the sky, Ruskin was insisting, we must purify ourselves (Ruskin 1908). In a sky which seemed no longer to simply form a passive backdrop to the human drama, but instead seemed to be acting in new and disturbing ways, Ruskin perceived at once the extension and the autonomization of human powers, daimōnia which helped to reveal something of what modern humans were becoming.

Recall the way that Sigmund Freud made our understanding of human agency more complex by revealing the way that conscious intention is often overwhelmed by what he called the unconscious—that what we think are our reasons for doing things is only part of the story. It seems that what we are looking at here is the mirror image of Freud’s insight—not tracing the causes of action back, into a shadowy zone beneath human consciousness which at the same time reveals more about who we are, but tracing the effects of action forward, beyond the usual point at which we would say that attribution and responsibility stops. As our ability to produce effects continues to outstrip our ability to control them, perhaps
we can expect further mutations to occur in the way we conceive of human and institutional agency and identity, such that unintended consequences become as significant in our judgements of actors than intended ones.

Second, the techno-demons of risk can also serve as angelic messengers; to the very extent that they fail to communicate our intentions to the world, they can remind us of the limits of technical reason. Recall that the Greeks felt that the craftsman or woman had to cooperate with matter, a notion that found its way into mediaeval thought too. But then a space for modern technology was opened up by a voluntarist theology which saw God as a supreme sovereign, and matter as passive. This made it possible to conceive of imposing form on matter without remainder, and for man to take God’s place as the unconditioned law-giver (Szerszynski 2005: 51-64). But the techno-demons of environmental risk can be seen as reminding us of the falseness of this theology, and the falseness of a realized eschatology in which humans are conceived as capable of reversing the fall, one which seeks to take the contingency from human life and thus deny our creatureliness. To call this insight ‘precautionary’ is to simplify and reify it—indeed, to render it technological. Instead, we need to develop new ways of thinking about techne which does not fall into this trap—to redeem the practical arts by re-embedding them within a larger framework of natural and supernatural flourishing, but also by listening to what they say to us.

In conclusion, if, as Barth (1960: 480) argues, angels belong to God alone, while we like other earthly creatures belong both to God and to ourselves, then technologies belong to God and to us, but not to themselves. It is technologies’ not belonging to themselves, their lacking of any inherent telos, that fits them for being wielded for quotidian human purposes; but it is their belonging to God that fits them for the redemptive role that they can play in history. And perhaps it is the very denial that technologies ultimately belong to God, their very construal in purely secular terms, that allow them to start to belong to themselves, to become autonomous, in the pathological ways explored in this article. The modern aspiration to make technologies radically ours, to utilize them solely with reference to human, secular purposes, can be seen as an attempt by humanity to have its own angels, its own perfect servants, its own infinite extension of its powers. But the irony is that the denial that technologies belong to God seems ultimately to give them not to us, but to themselves—to render them demonic, and to place humanity under their thrall. Perhaps Heidegger was right, after all when in his 1966 interview for Der Spiegel (reproduced in Sheehan 1981: 45-67), he insisted that in humanity’s current state of thraldom to technology ‘only a god
can save us’. If my analysis is correct, the project of democratizing and humanizing modern technological development needs to be understood and approached as a fundamentally theological project. Without such a framing, there is a danger that we will see the unleashing of even more techno-demons, rather than the restoration of technology to its rightful place in creation.

References

Arendt, Hannah

Bacon, Francis

Banham, Gary

Barth, Karl

Beck, Ulrich

Bijker, Wiebe E., Thomas P. Hughes and Trevor J. Pinch

Cacciari, Massimo

Daly, Robert W.

Ellul, Jacques

Fan, Mei-Fang

Gibbons, Michael, Camille Limoges, Helga Nowotny, Simon Schwartzman, Peter Scott and Martin Trow

Goodchild, Philip

Habermas, Jürgen
Ecotheology

Hacking, Ian

Hearne, Vicki
1987 Adam’s Task: Calling Animals by Name (London: Heinemann).

Heidegger, Martin

Jaeger, Carlo

Jonas, Hans

Krohn, Wolfgang and Johannes Weyer

Kwan, H.S.

Latour, Bruno
1998 ‘From the World of Science to the World of Research?’, Science 280, 5361: 208-209.

Law, John

Law, John (ed.)

McLuhan, Marshall

Mitcham, Carl

Morrison, Clinton

Noble, David F.

© Equinox Publishing Ltd 2006.
Nowotny, Helga, Peter Scott and Michael Gibbons
2001 Re-Thinking Science: Knowledge and the Public in an Age of Uncertainty
(Cambridge: Polity).

Proudfoot, Wayne

Ruskin, John

Sheehan, Thomas

Song, Robert

Szerszynski, Bronislaw

White, Lynn, Jr

Wink, Walter

Winner, Langdon

© Equinox Publishing Ltd 2006.