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POETRY AS SPECULATIVE SCIENCE

The origins of the Gaia hypothesis in poetry and myth

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*In the post-enlightenment era, the division between poetry and ‘truth’ has largely been framed in terms of scientific versions of truth. In the modern era, this has manifested itself in a number of ways: in the adoption of ‘experimental’ as a metaphorical term for innovative poetic practices, and in the positivist framework for the notion of ‘progression’ in the arts generally. In this paper I seek to establish a frame for speculative poetry that is invested in myth conceived of as a resource of language. Following Ronald Hutton’s *The Triumph of the Moon*, I trace the development of James Lovelock’s ‘Gaia hypothesis’ as having its roots in eighteenth century mythopoeic practice, and also the foundations of scientism in the myth of atomism. I argue more broadly for the importance of poetry as a form of speculation predicated on myth, and that this aspect of poetry can be of vital importance in facing large-scale challenges such as global warming.*

Keywords: myth; poetry; atomism; Mary Midgley; Northrop Frye; Ronald Hutton; Gaia; James Lovelock; Claude Lévi-Strauss; Jean-Luc Nancy; Lucretius; Earth Goddess; Jindyworobak

In this paper I want to examine the relationship between poetry and science in terms of two strangely interrelated concepts: myth and scientism. For the purposes of this discussion, I distinguish between two aspects of ‘myth’: the broader sense in which Northrop Frye writes of the operation of the imagination to identify the human with the non-human world (Frye 1947; Humphries 1998); and a narrower sense in which I characterise myth as an assemblage of particular elements, which can therefore be understood as a resource of language. Scientism is that attitude which attends to science like an intellectual cyclops which, in its crudest sense, cannot see that other branches of learning and culture exist (Midgley 2001: 150). Scientism is as pervasive as the Christian myth, defining our attitude towards the arts (they ‘progress’, they conduct ‘experiments’), structuring the modern university (including the absurdity of the creative writing ‘thesis’ and ‘exegesis’, among other aspects), yet remaining blind to its own standing as a powerful contemporary myth. Myths circulate in a culture through language and through the arts in general; poetry is one influential distiller, formulator and resuscitator of them. In this paper I will examine two myths which have circulated freely between poetry and science, the Gaia hypothesis and atomism, before concluding with a brief discussion of the utility of myth.

The two aspects of myth which I have identified above are obviously inter-related; as a resource of language, however, myth has a number of features that are important to delineate. One is Jean-Luc Nancy's observation, citing Marcel Détiéne's *L'Invention de la mythologie* (1981) that 'myth as such is an "unlocatable genre"'; another is that myths are always to hand in the sense that 'we know that although we did not invent the stories ... we did on the other hand invent the function of the myths that these stories recount' (45). While Détiéne speaks of 'the fleeting, ungraspable essence of myth' (Nancy 1981: 159n), it is also readily present for use in poetic invention. Another aspect of myth is that it is often an originary narrative; equally, it can also be foundational or definitional/explanatory.

I am mostly concerned in this paper with the myths that are available to us contemporaneously; I am therefore situating my discussion after modernism's engagement with the 'primitive'^[1] and in this regard my argument echoes David Macarthur's 'radical hypothesis that modernist art *as a whole* is a Western response to tribal culture. Australasian modernism is to a large but indeterminate extent a Western response to Aboriginal culture' (2015: 228). Indeed, the 'primitive' overshadows our current understanding of myth, so much so that 'myth' is often only conceived of in terms of the ancient, the 'primitive' or the 'original'. Yet there are a number of myths circulating in contemporary Australia which have at least one relatively recent origin: one example is the Ned Kelly story, which is affiliated with the myth of the 'larrikin' as being somehow representative of the Australian national character (a point to which I shall return). In this regard I prefer to see myth as a kind of 'handle', in the sense that it is both definitional (a 'handle' as a person's name) and is something which can be grasped and then used for some purpose.

The last point I would like to make about myth is that it has no single point of origin. 'Origin' here is not to be confused with a historical event or person, such as the crimes and execution of Ned Kelly, around which a myth has been built. The origin of a myth is not derived from an author: 'mythology is not invented by individuals: it has proceeded from the *people* itself' (Schelling 2007: 45). If an account of how myth originates is demanded, to this I would respond that any such account would itself be mythic. That is, any explanation for how a myth comes into being is usually itself a kind of originary myth which either supplements or substitutes for the original myth. An example of this is Claude Lévi-Strauss' conceptualisation of the 'gross constituent units' of myth, which later came to be termed 'mythemes':

1. Myth, like the rest of language, is made up of constituent units. 2. These constituent units presuppose the constituent units present in language when analyzed on other levels, namely, phonemes, morphemes, and semantemes, but they, nevertheless, differ from the latter in the same way as they themselves differ from morphemes, and these from phonemes; they belong to a higher order, a more complex one. For this reason, we will call them *gross constituent units*. (Lévi-Strauss 1955: 431)

There is a difference between stating that myth is 'an assemblage of particular elements' and that it is 'made up of constituent elements'. For example, an important element of the Ned Kelly myth is his helmet, yet Ned Kelly's helmet is not a mytheme, as it is not shared or 'bundled' with other related mythemes (Lévi-Strauss 1963: 211). The constituent units to which Lévi-Strauss refers are examples of the atomistic myth which came to predominate at the end of the nineteenth century and informed

many foundational assumptions in the human sciences throughout the twentieth century (a point to which I shall return below). Having outlined my understanding of myth as a resource of language, I now want to look at the development of the Gaia hypothesis, and specifically its mythic dimensions.

The Gaia hypothesis originated in James Lovelock's 'flash of enlightenment' while he was working in Pasadena California in 1965, that 'life defines and maintains the material conditions needed for its survival', and that the whole planetary ecosystem 'seemed to exhibit the behavior of a single organism — even a living creature' (Lovelock and Epton 1975: 304). Lovelock published a brief note in 1968 in *The Proceedings of the American Astronautical Society* and a letter to *Atmospheric Environment* in 1971 before collaborating with the biologist Lynn Margulis in the mid-1970s.

Nomenclature was crucial to the success of Lovelock's ideas in a couple of ways. The first of these is 'Gaia' itself:

My contemporary and fellow villager, the novelist William Golding, suggested that anything alive deserves a name — what better for a living planet than Gaia, the name the Greeks used for the Earth Goddess? (Lovelock 1988: 3)

William Golding was an avid reader of classical Greek and it is tempting to assume that knowledge of Hesiod was his sole source; certainly, there is no entry at all for Gaia or Gaea in Eric Smith's *A Dictionary of Classical Reference in English Poetry* (1984). However, a look at entries for other goddesses in that work suggests a more complex picture. As Ronald Hutton notes,

Between 1800 and 1940 Venus (or Aphrodite) retains her numerical superiority in appearances with Diana (or Artemis) coming second. Juno, however, almost vanishes, and so does Minerva after 1830. The third place is now taken by Proserpine, as goddess of the changing seasons or of the dead, and the fourth by Ceres or Demeter, lady of the harvest. A reading of the texts listed discloses a much more striking alternative. Venus now appears not merely as patroness of love but related to the woodland or the sea. Diana is no longer primarily a symbol of chastity or hunting, but of the moon, the greenwood, and wild animals. Furthermore, when a goddess is made the major figure in a poem, instead of the subject of an incidental reference, the supremacy of Venus is overturned. Diana now leads, or else a generalized female deity of moonlight or the natural world, most commonly called 'Mother Earth' or 'Mother Nature'. (Hutton 1999: 33)

Diana, therefore, was gradually transformed into the Earth Goddess, fusing also with the figure of Demeter in particular. As the Greek goddess of Earth, Demeter really only begins to appear in English poetry from the second half of the nineteenth century, a little later than the rise of Diana, in the work of poets such as Arnold, Bridges, Lawrence, Meredith, Swinburne and Tennyson (Smith 1984: 77). Why should this be?

Broadly speaking, the rise of an Earth Goddess accompanied the nineteenth-century progress of industrialisation and scientific discovery. Ronald Hutton's history of modern pagan witchcraft, *The Triumph of the Moon* (1999), traces the development of the German Romantic idea, especially in the work of Herder, the Schlegels and Tieck, that prehistoric religion was 'an embodiment of sublime

truths, which had degenerated and been forgotten among most modern tribal peoples' (Hutton 1999: 35; 419n). Hutton also examines the development of the idea of a primeval Goddess through many later thinkers across a range of disciplines. For example, in 1849 the classicist Eduard Gerhard 'advanced the novel suggestion that behind the various goddesses of historic Greece stood a single great one, representing Mother Earth and venerated before history began', an idea which was adopted by other classicists such as Ernst Kroker, Fr. Lenormant, and MJ Menant, and meshed with other theories, such as that of the Swiss judge JJ Bachofen 'that the earliest human societies had been woman-centred, altering to a patriarchal form before the beginning of history; what was true in the secular sphere should also, logically, have been so in the religious one' (35-6). In 1901 Sir Arthur Evans converted to the idea that 'prehistoric Crete had venerated a single mighty goddess' while excavating Knossos, later associating her with neolithic 'Venuses' and historic Near Eastern goddesses (36). Later figures such as Edmund Chambers, a civil servant and scholar of the medieval stage, classicist Jane Ellen Harrison, anthropologist Sir James Frazer, and archaeologist Joseph Dechelette, among many others, all promoted the idea of a single great goddess as central to prehistoric religious belief; yet Hutton observes of Evans that 'he and the scholars who preceded or followed him had projected backwards upon prehistory the goddess who had emerged as pre-eminent in the minds of poets and novelists during the nineteenth century' and that 'between 1840 and 1940 historians and archaeologists had turned Neolithic spirituality into a mirror of Christianity, but one which emphasised opposite qualities: female instead of male, earth instead of sky, nature instead of civilization' (39-40).

The Great Goddess, therefore, is as much a product of modernity as a response to it, and Golding's contribution to Lovelock's hypothesis is merely one step in a mythopoeic development that also informed the rise of neo-paganism and second wave feminism. Apparently, the flimsiness of the archaeological evidence was no impediment to the hunger for an alternative myth to that of the official culture of the times and to the fact that the resources were readily to hand, in poetry, novels, art and folklore. And it has been a very useful myth.

In his notebooks concerned with anagrams in Saturnian verse, Saussure investigated the transmission of legends (which I take to mean particular instances of myth) across time as a way of understanding how the principle of anagrammatic distribution in Saturnian verse might also be transmitted from generation to generation. Saussure's conception of the legend is close to how I understand myth to be primarily a resource of language. While Saussure assumes, according to Starobinski, that 'historical characters are taken over by legend' (Starobinski 1979: 6), he is focused on what is to hand for the

poet who gathers and organizes legend only recovers, for any particular scene, those things which are *properties* in the most exact, theatrical sense. When the actors have left the stage, a few objects remain: a flower on the floor, a [] which lingers in the memory, suggesting more or less what has happened, but which, being only partial, leaves room for — (Starobinski 1979: 7).

Usually this results in 'a profound conservative tendency which dominates the realm of legend', but if there is change, then 'Imagination, *across a memory gap*, is the principal factor' (7).

Where imagination is at work, Saussure sees a kind of ‘nobility’ which, like that of language, ‘lies in the fact that restricted as both are to elements of particular meaning, they then unite these elements, continually drawing new meanings from them’ (8). It is worth looking in detail at what Saussure goes on to say about this process:

A solemn law regulates these processes, which one would do well to consider before concluding that this conception of legend is false: nowhere do things flourish which are not a combination of inert elements, and nowhere can we perceive matter as other than that constant nourishment which thought directs, regulates, and controls, but on which it is dependent.

To imagine that a legend begins with one particular meaning and has since its origin had the meaning it currently enjoys or, conversely, to imagine that it could not have had any meaning whatever is an exercise beyond my powers. It seems to suppose that material elements of the legend have not been conveyed across centuries; that, given five or six basic elements, the meaning will change in the space of a few minutes if I give them for combination to five or six people working independently. (8)

Gaia was imagined into being from what was to hand: the Venus of Willendorf, Diana, Demeter, Persephone, Hecate, Hesiod. The motivation for the myriad imaginings which achieved this is complex, from wanting an inverted form of religious myth in which to believe, to a desire to endow nature with divinity; yet the result is a simple myth which has great utility in addressing global warming.

The second way in which naming was crucial to the success of the Gaia hypothesis was in Lovelock’s coining of a new ‘discipline’ of ‘geophysiology’ in 1991 (Lovelock 1991). According to Mary Midgley,

when James Lovelock first displayed this idea, the extreme reductivism then prevailing in biology made orthodox scientists reject it outright. Since that time, however, as the details of the idea have been worked out, a good deal of the science involved has been found to be quite plausible and is now being discussed at a normal level. The main difficulty, however, was never about those scientific details. It concerned the imagery, the vision of a wider whole, in some sense a living whole, of which we are a part. It became clear how much this imagery mattered to the scientists when Lovelock introduced a slightly different image, namely the medical model of the earth as a sick planet needing our care and attention — needing, in fact, a science of *geophysiology* to study its health and sickness. (2001: 16)

‘Geophysiology’ is really a myth with a scientific name; we could view it as a para-myth, or even, perhaps, a micro-myth, which I suggest is something which is not quite a myth in its own right but is closely associated with a myth. However we choose to designate it, it is clearly part of a myth which is, and has been, useful to us. By giving a human dimension (other than its cause) to global warming, viewing it as something which is sickening a female, motherly entity, the formulation of the problem becomes graspable, affecting and powerful. Even if it’s a bit daffy, it’s a myth worth holding onto for now.

The same cannot be said for the myth of atomism, which is the focus of Mary Midgley's book *Science and Poetry*. Richard Dawkins' idea of 'The Selfish Gene' sits firmly in her cross-hairs, and in particular his notion of the 'meme' as the fundamental unit of which culture is composed (Midgely 2001: 70). Just about anything ending in '-eme' entails the notion of complex systems being ultimately explainable through reduction to fundamental invariant units. There is no mystery to this: Jakobson and Halle contend that

the actual linguistic study of these invariants started only in the 1870s and developed intensively after World War I, side by side with the gradual expansion of the principle of invariance in the sciences. (2002: 18-19)

As far as I am aware, the 'principle of invariance' is not a scientific law or a proven fact, and the setting of 'invariance' in small capitals seems to betray a tacit insecurity. When the 'principle of invariance' is not viewed from the perspective of a social science, in this case of linguistics cosying up to 'the sciences', but from the perspective of poetry, it begins to look suspiciously like a myth: the myth of scientism, built on atomistic foundations.

According to Midgley, Lucretius' poem 'De Rerum Natura' ('On the Nature of Things') 'was the main channel through which the atomic theory of matter reached Renaissance Europe. It was forcibly stated there, all ready to be taken up by the founders of modern physics' (Midgely 2001: 23). While she acknowledges the obvious origin of atomism in Greek philosophical thought, specifically Leucippus and Democritus, the importance of Midgley's identification of Lucretius' influence is what accompanied that idea, specifically the micro-myth of 'true piety' which 'lies rather in the power to contemplate the universe with a quiet mind' (Book V, lines 1185 and 1194–1203) (Midgely 2001: 25). The myth of atomism is not just a theory of fundamental particles, but is that plus an attack on superstition and religion, those things which get in the way of a 'quiet mind'. The myth of atomism is therefore complex, bringing with it a rejection of any other means of salvation save science. In late Republican Rome, such a myth may have been a novelty, and may also have been provocative; in the nineteenth century, when atomic theory gained its foothold, such a myth was a handy tool of scientism. And according to Midgley, not all myths should be valued equally:

Obviously the idea of Gaia is a myth, a symbol. But then so is the sociobiological idea of the Selfish Gene. One of these myths emphasises our separateness from the world around us. The other emphasises our profound dependence on it. Since wholes are quite as real as parts, there is no reason in principle why we should have to prefer the first emphasis over the second. The choice between them depends on their relevance to our situation. And given that current situation, there seems to me to be little doubt about which of them we most need to guide our thinking today. (17)

The atomistic myth has served its purpose, aiding in the development of quantum physics, structuralism, and the advent of personal trainers amid much else. Yet physics long ago moved on from the idea of the atom as a 'thing', even if the word is wedged firmly in the popular imagination. It might just have to be the work of poetry to discover a new set of myths so that, if the political and social 'sciences' look to physics once more for inspiration, they may be more willing to find a model of the human that is more like a wave than a particle (or, ideally, both).

The relationship between poetry and the sciences is more complex than is usually supposed. Science makes use of myth as much as philosophy does and they often come into science or philosophy from poetry. I have looked at the myth of the Gaia hypothesis and the atomistic basis of scientism, but there are other myths apart from these which are to hand, or could be to hand if we knew where to look. Some of these have potential as yet untapped, while some have passed their use-by date. One myth that is questionable is the Ned Kelly larrikin myth (Midgely 2001: 17): why does Australian culture so desperately need to hold dear the myth of the rebellious outlaw, the larrikin, or the disrespectfully heroic digger? Obviously, because it is part of the ongoing process of decolonisation. Yet it can be the work of poetry to bring myth into focus and transform our reality in ways that can be of use in science and in other fields of inquiry. For example, what if the myth of the larrikin were to be replaced with the myth of the tyre-kicker, that we are a nation of tyre-kickers in the used car yard of current ideas? As a foundational fiction it is as appealing as any other contenders, even more so as it engenders the scepticism which accompanies the enlightenment discourse upon which modern Australia was founded, and also a skepticism directed towards itself.

If the tyre-kicker can become a foundational myth (and it can: I didn't make it up, it was already to hand), then that scepticism could (and should) be directed to the myth that in Australia there is a near absence of uniquely Australian myths. On the contrary, the land itself is teeming with them, but mostly we can't hear them. While I have mentioned one that is particular to an Australian Anglo-celtic tradition, there are obviously many others inaccessible through languages lost and through belief systems to which access may not be granted. Yet this perception of 'lack' or absence is not necessarily a particularly Australian problem, nor is it necessarily true. Nancy notes that after modernism, 'everything leads us to a world in which mythic resources are profoundly lacking' (1991: 47), although it is clear that Nancy is concerned with myth as Schelling defines it, as 'an operation of engenderment (Nancy 1991: 53) and, as such tends towards conceiving of myth in terms of those of ancient cultures, such as the Greeks'. I would agree that the resources for these myths are indeed scarce, but those for other myths are plentiful. For example, there are communities in Australia which are as much an expression of nationalist myths such as those of Ned Kelly or the larrikin as they are professed believers in their 'truth', and there are other communities for which the myth of 'the market is always right' is a binding and foundational narrative. And there are plenty of others to choose from.

I'd like to conclude on a speculative note a little removed from the theme of poetry and science, but hopefully not wholly irrelevant. As noted earlier, Australian poetry has already tried engaging with indigenous culture through the 'primitivist' modernism of the Jindyworobak movement (Kirkpatrick 2013: 128). The problems of this movement are starkly apparent today and can be summarised by Elazar Barkan and Ronald Bush's observation of primitivism in general that 'as for "primitives", they never existed. Only Western "primitivism" did' (1995: 2). Consequently, the mythic elements of Jindyworobakism were viewed or produced wholly through such a primitivist lens. I want to suggest that the learning of indigenous languages be compulsory in Australian schools. Without access to those languages which flourished and developed on this continent for thousands of years, we lack one of the basic transformative tools (and modes) of the imagination which developed here. It is only through this process that we can truly achieve reconciliation, for the establishment or identification of a unique voice in a language is what gives us access to myth (and here I am not advocating the appropriation of sacred belief systems, but rather those myths that are a resource to each language).

We need, for a while at least, to become all ears.

[i] Here I am following Macarthur’s important qualification: ‘I use the terms “primitive” and “primitivism” in a resolutely non-pejorative sense akin to that employed by the MOMA exhibition “Primitivism in 20th Century Art: Affinity of the Tribal and the Modern”: “The term ‘primitivism’ is used to describe the Western response to tribal culture as revealed in the work and thought of modern artists” (MOMA press release, Aug 1984).’ (Macarthur 2015: 228)

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