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Dreaming of dragons: on the imagination of real life

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This article draws on studies of medieval monasticism and northern indigenous ontologies to show how we might heal the rupture between the real world and our imagination of it, which underpins the official procedures of modern science. Though science is not averse to dreams of the imagination as potential sources of novel insight, they are banished from the reality it seeks to uncover. Ever since Bacon and Galileo, nature has been thought of as a book that will not willingly give up its secrets to human readers. The idea of the book of nature, however, dates from medieval times. For medieval readers as for indigenous hunters, creatures would speak and offer counsel. But in the transition to modernity the book was silenced. This article suggests that by acknowledging our imaginative participation in a more-than-human world, and the commitments this entails, we can reconcile scientific inquiry with religious sensibility as ways of knowing in being.

Facing the facts

In the year 1620, the English philosopher-statesman Francis Bacon set out a plan for what was to be a massive work of science, entitled *The great instauration*. Dedicated to King James I, who had recently appointed Bacon as his Lord Chancellor, the work was never completed. In his prolegomenon, however, Bacon railed against traditional ways of knowing that continually mixed up the reality of the world with its configurations in the minds of men. If only the mind were as clear and even as a perfect mirror, then – said Bacon – it would 'reflect the genuine rays of things'. But it is not. Cracked and deformed by flaws both innate and acquired, by instinct and indoctrination, the mind distorts the images that are cast upon its surface, by way of the senses, and cannot – if left to its own devices – be relied upon to deliver a true account of things as they are. There is but one way out of this predicament, Bacon argued, and that is by appeal to the facts. 'Those', he wrote, 'who aspire not to guess and divine, but to discover and know, who propose not to devise mimic and fabulous worlds of their own, but to examine and dissect the nature of this very world itself, must go to the facts themselves for everything' (Bacon 1858: 27-8).[1]

Bacon's words have an unmistakeable contemporary ring. Today's science continues to found its legitimacy upon its recourse to the data, which are repeatedly checked and rechecked in a never-ending search for truth through the elimination of error. And for the most part the sciences of mind and culture, psychology and anthropology, have ridden on the back of the same enterprise. That is to say, they have colluded in the

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division between what Bacon called the 'world itself', the reality of nature that can be discovered only through systematic scientific investigation, and the various imaginary worlds that people in different times and places have conjured up and which – in their ignorance of science and its methods – they have taken for reality. Where anthropologists busy themselves with the comparative analysis of these imaginary worlds, psychologists purport to study the mechanisms, presumed to be universal, that govern their construction. All agree that the realms of reality and the imagination should on no account be confused. For the very authority of science rests upon its claim to disclose, behind the home-made 'figments' that the imagination paints before our eyes, the facts of what is really there. One can of course study figment as well as fact, so as to deliver what many anthropologists still call 'emic' rather than 'etic' accounts, but to mix the two is to allow our judgement to be clouded by error and illusion. 'For God forbid', as Bacon put it, 'that we should give out a dream of our imagination for a pattern of the world' (1858: 32-3).

I argue in this article that Bacon's injunction, which modern science has taken to its heart, has had fateful consequences for human life and habitation, cutting the imagination adrift from its earthly moorings and leaving it to float like a mirage above the road we tread in our material life.[2] With our hopes and dreams suffused in the ether of illusion, life itself appears diminished. Shorn of its creative impulse, it no longer gives cause for wonder or astonishment. Indeed, for those of us educated into the values of a society in which the authority of scientific knowledge reigns supreme, the division of real life and the imagination into the two mutually exclusive realms of fact and fable has become so engrained as to be self-evident. The problem, in our estimation, has been one of how to reach some kind of accommodation between the two. How can we make a space for art and literature, for religion, or for the beliefs and practices of indigenous peoples, in an economy of knowledge in which the search for the true nature of things has become the exclusive prerogative of rational science? Do we suffer the imagination to persist in our midst, or tolerate its penchant for fantasy, out of a compensatory wish for enchantment in a world that has otherwise ceased to enthral? Do we keep it as a sign of creativity, as a badge of civilization, out of respect for cultural diversity, or merely for our own entertainment? Such questions are endemic, yet the one thing we forget in posing them is how hard it is, in our experience, to split the reality of our life in the world, and of the world in which we live, from the meditative currents of our imagination. Indeed the problem is the very opposite of what we take it to be: not of how to reconcile the dreams of our imagination with patterns in the world, but of how to separate them in the first place.

Historically, this separation was but slowly and painfully achieved, in the religious upheavals of the Reformation and the turbulent beginnings of early modern science, in which Bacon – along with his exact contemporary, Galileo – played a pivotal part. But the historical process is recapitulated today in the education of every schoolchild who is taught, on pain of failure in his or her examinations, to distrust the sensuous, to prize intellect over intuition, and to regard the imagination as an escape from real life rather than its impulse. Almost by definition, it seems, the imaginary is unreal: it is our word for what does *not* exist. As every modern parent knows, for example, *there's no such thing as a dragon* (Kent 2009). We grown-ups are convinced that dragons are creatures of the imagination. Having seen them pictured in the books we read when we were children, and that we in turn read to our own offspring, we are familiar with their general appearance: green scaly bodies, long forked tails, flared nostrils, sabre-like teeth

and flaming mouths. These monsters roam the virtual terrain of children's literature alongside a host of other creatures of similarly fictive provenance. Some, of course, have real zoological counterparts. While the ever-popular Tyrannosaurus Rex is conveniently extinct, other animals – from cobras to crocodiles and from bears to lions – are still around and occasionally claim human lives.[3] On encountering such creatures in the flesh, we do well to fear them.

Their fictive cousins, however, give no cause for alarm, for the only people they can eat are as imaginary as themselves. Along with the stuff of nightmares, these creatures are sequestered in a zone of apparitions and illusions that is rigorously partitioned from the domain of real life. We calm the sleeper who wakes in terror, at the point of being consumed by a monster, with the reassuring words, 'Don't worry, it was only a dream'. Thus the boundary between fact and phantasm, which had seemed momentarily in doubt at the point of waking, is immediately restored. What, then, are we to make of the following story, which comes from the *Life of St Benedict of Nursia*, composed by Gregory the Great in the year AD 594? The story tells of a monk who encountered a dragon. This monk was restless: his mind was given to wandering and he was itching to escape from the cloistered confines of monastic life. Eventually the venerable father Benedict, having had enough of the monk's whingeing, ordered him to leave. No sooner had he stepped outside the precincts of the monastery, however, than the monk found his path blocked by a dragon with gaping jaws. Convinced that the dragon was about to eat him up, and trembling with fear, he shouted to his brothers for help. They came running. Not one of them, however, could see any dragon. They nevertheless led their renegade colleague – still shaking from his experience – back inside the monastery. And from that day on he never again went astray, or even thought of doing so. It was thanks to Benedict's prayers, the story concludes, that the monk 'had seen, standing in his path, the dragon that previously he had followed without seeing it' (Carruthers 1998: 185, original translation).

The shape of fear

Perhaps the monk of this cautionary tale was merely suffering from nightmares. Medieval people, however, would not have been so readily reassured as their modern counterparts by the realization that in their encounters with dragons and other monsters, what they had seen was but a dream. They were not so gullible as to suppose that dragons *exist*, in the specific sense of existence invoked by modern people when they assert, to the contrary, that dragons do *not* exist. It is not as though the monk, in our story, came face to face with some other creature that, with the benefit of scientifically informed hindsight, we moderns can recognize, say, as a species of reptile. Remember that the brothers who came to his rescue saw no dragon. What they did see, however, was that the monk was trembling. No doubt they saw the look of terror etched in his face. And yet when the monk cried out to be saved from the jaws of the dragon, the brothers understood his predicament at once. They did not react to his outburst – as the modern psychiatrist might react to the ravings of a lunatic escaped from the asylum – as the idiosyncratic, possibly drug-induced hallucinations of a fevered and unsettled mind. Rather, they immediately recognized, in the vision of the dragon, the form of the monk's otherwise inarticulable agitation, and imperilled themselves in responding, affectively and effectively, to his distress. The monk was on the point of being consumed by fear, and already felt the symptoms of personal disintegration. The dragon was not the objective cause of fear; it was the shape of fear itself.

For the brethren of monastic communities, this shape would have been well known to all, drummed in through rigorous discipline of mind and body. In this training, stories and pictures of dragons and of other, equally terrifying monsters were used not as we would today, to create a comfort zone of safety and security by consigning everything that might be frightening to the realms of make-believe, but to instil fear in novices, so that they might experience it, recognize its manifestations, and – through a stern regime of mental and bodily exercise – overcome it. As the manifest form of a fundamental human feeling, the dragon was the palpable incarnation of what it meant to 'know' fear. Thus in medieval ontology, the dragon existed as fear exists, not as an exterior threat but as an affliction instilled at the core of the sufferer's very being. As such, it was as real as his facial expression and the urgency in his voice. But unlike the latter, it could be neither seen nor heard save by the one who was himself afeared. That is why the monk's rescuers saw no dragon themselves. They were most likely motivated by a feeling of compassion, which may for them – in the idiom of the time – have called to mind the image of a saintly figure, radiating light. Both saints and dragons, in the monastic imagination, were concocted from fragments of text and pictures shown to novices in the course of their instruction. In that sense, to adopt the apt term of historian Mary Carruthers (1998: 187), they were 'figmented'. But these figments of the imagination, far from being cordoned off in a domain separate from that of 'real life', were for medieval thinkers the outward forms of visceral human experience, lived in the space of rupture between Heaven and Hell.[4]

The monk of the story was torn between the two. Expelled from the monastery by the saintly Benedict, he was confronted by the devil – in the shape of the dragon – waiting for him outside. Rescued in the nick of time, he was led back in. Thus the story unfolds along a path of movement, from inside to outside and then back inside again. From the very beginning, we are told, the mind of the monk was prone to wandering. Indeed in a puzzling twist at the end of his tale, Gregory recounts that for all that time, the monk was following the dragon *without actually seeing it*. It is as though he was sleep-walking. What happened when he stepped outside was a loss of bearings, of the kind that occurs when one is thrust into an unknown environment. It was a rude awakening. He panicked, and at that moment the dragon reared up before his eyes, blocking his path. So in truth, the story concludes, Benedict did the monk a good turn by throwing him out, since it led him to see – and thus to know – the dragon that he had otherwise blindly followed. For writers in the monastic tradition, as the narrative brings out so clearly, knowing depended on seeing, and both proceeded along trajectories of movement. To understand what they meant we have to think of cognition, as Carruthers explains (1998: 70), 'in terms of paths or "ways" '. The medieval thinker was a wayfarer, who would travel in his mind from place to place, composing his thoughts as he went along (Ingold 2007: 15-16, 95).

Dreams and reality

I shall return in due course to the question of wayfaring. In the meantime, let me introduce another example. Among the Ojibwa, indigenous hunters and trappers of the Canadian North, there is said to be a bird whose sound, as it swoops across the sky, is a peal of thunder. Few have seen it, and those who have are credited with exceptional powers of revelatory vision. One such, according to the ethnographer A. Irving Hallowell, was a boy of about 12 years. During a severe thunderstorm, Hallowell recounts, the boy ran out of his tent and saw a strange bird lying on the rocks. He ran

back to call his parents, but by the time they arrived the bird had disappeared. The boy was sure it was *pinési*, the Thunder Bird, but his elders were unconvinced. The matter was clinched, and the boy's account accepted, only when a man who had *dreamed* of the bird verified the boy's description (Hallowell 1960: 32). Clearly, *pinési* is no ordinary bird, just as the dragon is no ordinary reptile. Like the sound of thunder itself, the Thunder Bird makes its presence felt not as an object of the natural world but, more fundamentally, as a phenomenon of experience (Ingold 2000: 278-9). It is the incarnate form of a sound that reverberates through the atmosphere and overwhelms the consciousness of all who hear it. Just as the monk's brethren, as they rushed outside, saw no dragon, so the boy's parents did not themselves witness *pinési*. But as the conventional shape of a powerful auditory sensation, it would have been entirely familiar to them. The Thunder Bird may be a figment of the imagination, but it is an imagination that has saturated the fullness of phenomenal experience.

The philosopher Gaston Bachelard (1988: 65-89) has written eloquently of how the bird of our dreams and that inhabits the realms of the poetic imagination is not a thing of flesh and feathers but a composition of air and movement in which the dreamer himself is borne aloft and carried along. The bird, says Bachelard, 'is the dynamic eye of the storm' (1988: 77): its body the wind, its breath the tempest, and its wings the sky. For it to appear in its customary avian form the dreamer must 'climb back up towards the day' (1988: 73), yet the apparition can only be momentary since the very climb causes it to be eclipsed as the quotidian boundary between seeing and dreaming is restored. Though Bachelard's sources are from Western literature – notably the visionary writings of William Blake – Ojibwa people would have immediately understood the point, along with its corollary, namely that the flesh-and-feathers bird is but a manifestation of the real bird of the dream-storm, rather than the other way round, and could not exist without it. Likewise, the fearsome dragon of Gregory's account was the form of incandescent terror enveloping the subject becoming self-aware at the moment of waking. It should come as no surprise, then, that in the incident related above, the boy's observation was verified by a dream. The direction of filiation, as Bachelard puts it, is 'from spirit down to corporeal beings' (1988: 71), allowing the latter to be brought to life by the former. Bacon, had he known about the case, would have been appalled. For us moderns the direction of filiation is precisely the reverse, from the reality of living beings to their more or less fantastical apparitions. Thus it is more usual, and certainly more acceptable, to require that dreams be verified by observation than vice versa.

A well-known instance is the story of how the chemist Friedrich August Kekulé discovered the structure of the benzene molecule, comprised of a ring of six carbon atoms. According to Kekulé's own, admittedly retrospective and possibly embellished account, it happened one night in 1865 while he was staying in the Belgian city of Ghent. He had been up late in his study, at work on a textbook. Making little progress, he had turned his chair towards the fire and dozed off. In his reverie, atoms gambolled before his eyes, twining and twisting in snake-like motion.

> But look! What was that? One of the snakes had seized hold of its own tail, and the form whirled mockingly before my eyes. As if by a flash of lightning I awoke ... I spent the rest of the night in working out the consequences of the hypothesis (in Benfey 1958: 22).[5]

Whatever Kekulé might have felt at the moment of waking, we can be sure that once the flash that shook him from his slumber was extinguished, the gyrating serpent of his

dream was no longer an affectation of vision and had become instead an abstract figure of thought – a snake 'good to think with' – that was peculiarly apt for deciphering the structure of a given reality. Thus the serpent and the benzene ring fall unequivocally on either side of an impermeable ontological division between imagination and reality. It is this that allows the one to stand metaphorically for the other. The congruity between serpent and ring reinforces the division rather than breaking it down.

The dream-induced conjecture, however, is but a chimera until subjected to empirical test. It was in this vein that Kekulé went on to advise his audience. 'Let us learn to dream, gentlemen, then perhaps we shall find the truth ... But let us beware of publishing our dreams till they have been tested by waking understanding' (in Benfey 1958: 22). Indeed, subsequent experimental work in the laboratory proved Kekulé's hypothesis to be substantially correct, and it went on to become a cornerstone of the emerging field of organic chemistry. The dream itself, however, did not. In the light of day, the dream vanished into oblivion. Thus science concedes to the imagination the power of conjecture – to think 'outside the box' – but only by banishing imagination from the very reality to which it affords insight. For the Ojibwa, by contrast, it would have been quite the other way around. For them, the truth of things is not only found but also tested by personal oneiric experience, which is why the boy's sighting of *pinési* could be corroborated by his elder's dream. In this quest for knowledge through experience, the powerful more-than-human beings that inhabit the Ojibwa cosmos, including Thunder Birds, are not analogical resources but vital interlocutors. This cosmos is polyglot, a medley of voices by which different beings, in their several tongues, announce their presence, make themselves felt, and have effects. To carry on your life as an Ojibwa person you have to tune into these voices, and to listen and respond to what they are telling you.

Another Thunder Bird story from Hallowell – admittedly told him by an informant – perfectly illustrates the point. Hallowell's informant was sitting in a tent, one stormy afternoon, with an old man and his wife. The thunder rolled and clapped. At once, the old man turned to his wife. 'Did you hear what was said?', he asked. 'No', came the reply, 'I didn't quite catch it'. Commenting on the exchange, Hallowell remarks that the old man 'was reacting to this sound in the same way as he would respond to a human being whose words he did not understand' (1960: 34). This was not a simple failure of translation. It was not as though the Thunder Bird had a message for the old man that he failed to grasp because of his imperfect command of Bird language (Hymes 1964: 16). 'By and large', Hallowell observes, 'the Ojibwa do not attune themselves to receiving messages every time a thunderstorm occurs'. It transpires that this particular man had, in his youth, become acquainted with the Thunder Bird through the dreams of his puberty fast, and had gone on to develop a close relationship of tutelage with *pinési* (Hallowell 1976: 459). In the context of this relationship, listening and responding to thunder was a matter not of translation but of empathy, of establishing a communion of feeling and affect or, in short, of opening oneself up to the being of another.[6] And it is above all in dreaming, where the boundaries that surround the self in waking life are dissolved, that this opening up occurs.

Such exposure was not something that a sober scientist like Kekulé could even contemplate. For him, the path to true knowledge lay not in opening a dialogue with beings of the more-than-human world, but in an exact and literal reading of the facts already deposited there. The investigator who would 'follow the paths of the Pathfinders', Kekulé advised, 'must note every footprint, every bent twig, every fallen leaf.

Then, standing at the extreme point reached by his predecessors, it will be easy for him to perceive where the foot of a further pioneer may find solid ground' (in Benfey 1958: 23). The object, as Bacon had put it, was to write a 'true vision of the footsteps of the Creator' (1858: 33), inscribed in the works of His creation. It was a matter of unlocking the secrets of nature. But these secrets were not to be discovered through immediate sensory perception or affective involvement, nor would nature yield them willingly. Rather than letting other-than-human creatures speak for themselves, and listening to what they had to say, the natural philosopher had to penetrate their hidden operations by means verging on torture: to 'twist the lion's tail' until she would cry out (Eamon 1994: 285). As Bacon wrote in his *Novum organum* (the second part of the uncompleted *Great instauration*), 'the secrets of nature reveal themselves more readily under the vexations of art than when they go their own way' (1858: 95). And Galileo was of the same mind. Nature, he opined, cares not 'a whit whether her abstruse reasons and methods of operation are understandable to men' (in Galilei 1957: 183). To all intents and purposes, she had turned her back on humanity. In a now celebrated passage of his book *The assayer*, dating from 1623, Galileo had compared the natural universe to a 'grand book' which, though accessible to all, was nevertheless unreadable without a knowledge of the language and the characters in which it is written. That language, Galileo argued, is mathematics, and the characters are 'the triangles, circles, and other geometrical figures without which it is humanly impossible to understand a single word' (in Galilei 1957: 237). And what triangles and circles were for Galileo, the serpentine ring became for Kekulé – a character of rational thought.

Of words and works

The idea of the book of the universe, or of nature, is of considerable antiquity, and was as current among medieval scholars as it was subsequently to become in the rise of modern science. Historian of religion Peter Harrison traces it to a number of contemporaneous ecclesiastical sources from the twelfth century, among them the Parisian philosopher-theologian Hugh of St Victor, who, in his *De tribus diebus*, declared that 'the whole sensible world is like a kind of book written by the finger of God' (cited in Harrison 1998: 44). The idea rested, at root, on a homology between the *word* of God (*verbum Dei*), in the composition of the scriptures, and the *works* of God, in the creation of the world and its creatures (Bono 1995: 11). The question was: 'how could humans read those twin books?' With this, we can return to the monks of the medieval era, for whom – as I have already observed – the meditative practice of reading liturgical texts was a process of wayfaring. Again and again, they would compare their texts to a terrain through which they would make their way like hunters on the trail, drawing on, or 'pulling in', the things they encountered, or the events to which they bore witness, along the paths they travelled. The word in Latin for this drawing or pulling in was *tractare*, from which is derived the English 'treatise' in the sense of a written composition. As they proceeded, the personages whom they would meet on the way, and whose stories were inscribed on the pages, would speak to them, with words of wisdom and guidance, to which they would listen and from which they would learn. These were known as the *voces paginarum*, 'voices of the pages' (Leclercq 1961: 19-20; Olson 1994: 184-5). Indeed, reading was itself a vocal practice: typically, monastic libraries were abuzz with the sounds of reading as the monks, murmuring the voices of the pages, would engage with them as though they were present and audible (Cavallo & Chartier 1999: 17-18).[7] To read, in its original medieval sense, was to be advised by these voices,

or to take counsel, much as the old Ojibwa man would have been advised by the voice of his mentor the Thunder Bird – if only he had caught what it said![8]

Surrounded by the voices of the pages as the hunter is surrounded by the voices of the land, the medieval reader was a follower of tradition (*traditio*). Derived from the Latin *tradere*, 'to hand over', tradition meant something rather different from what it is commonly taken for today. It was absolutely *not* a corpus of teachings, or codified knowledge, to be passed from generation to generation. The word was rather used to signify an activity or performance, thanks to which it was possible – relay fashion – to *carry on*. The scriptures, far from giving content to tradition, laid down the paths along which this movement could proceed. Each path – each story – would take the reader so far before handing over to the next. The resemblance of the Latin *tradere* to Old English *trade*, whence is derived 'track', is accidental; however, as theologian Peter Candler (2006: 120-1) suggests in a commentary on the writings of Thomas Aquinas, the monks' calling was as much a trade as a craft. In his encyclopaedic survey of animals in myth, legend and literature, Boria Sax writes that 'to study a tradition is to track a creature, as though one were a hunter, back through time' (2001: x). Each creature *is* its story, its tradition, and to follow it is at once to perform an act of remembrance and to move on, in continuity with the values of the past.

Often, the name of the creature is itself a condensed story, so that in its very utterance, the story is carried on. But it is carried on, too, in the calls or vocalizations of the creatures themselves – if they have a voice – as well as in their manifest, visible presence and activity.[9] As a node or knot in a skein of depictions, stories, calls, sightings, and observations, none more 'real' than any other, every creature is not so much a living thing as the instantiation of a certain way of being alive, each of which, to the medieval mind, would open up a pathway to the experience of God. So it was, too, with the letters and figures of the manuscript which, according to Isidore of Seville, writing in the seventh century, enable readers to hear again and retain in memory the voices of those not actually present (Carruthers 1990: 106). Thus was the book of nature, written by the finger of God, mirrored in the nature of the book, read with the finger of man – a second nature comprised not of works but of words (Clingerman 2009).

For Isidore, reading should be done quietly, but could not be altogether silent since it depended on gestures of the throat and mouth (Saenger 1982: 384). The manuscripts of the time were normally copied in *scripto continua*, that is, with no spaces between words. The only way to read, then, was to read *out*, following the line of letters with the fingers while murmuring with the lips, much as one would follow a line of musical notation, and allowing the words to emerge or 'fall out' from the performance itself (Cavallo 1999: 73).[10] In the twelfth and early thirteenth centuries, however, there was a gradual shift towards reading with the eyes alone, unaccompanied by voice or gesture. What made this possible was the division of the line of text into word-length segments, each of which could be taken in at a glance, with spaces in between. This removed the need to mouth the letter-line, or to retrace it with the fingers. Medievalist and palaeographer Paul Saenger has shown how, with such visual reading, the voices of the pages were silenced (Saenger 1982: 378, 397; 1999: 136). As long as everyone in a monastic library was reading aloud, the sound of one's own voice would have screened out the voices of others. But when one is trying to read silently, the slightest sound can be a distraction. So it was that silence came to reign within the cloistered confines of the monastery. In the world outside the monastery, however, in lay society, oral reading continued to predominate well into the fourteenth and fifteenth centuries. As historian

of cognition David Olson (1994: 143-4) has pointed out, it was the Reformation that heralded the key transition in ways of reading, from reading *between* the lines to reading what was *on* them, or from the search for revelations or 'epiphanies' to the discovery of the one true meaning lodged in the text, and available to anyone with the necessary key to extract it.

Reading the new book of nature

In the early sixteenth century, Martin Luther urged readers to abandon the dreams and fantasies that their predecessors had found in their attunements to voices that they felt were speaking to them through the pages of the manuscript, and to draw a line in the sand between the given meanings of words and their subsequent interpretations (Olson 1994: 153-4). Scripture for the reformers was to be read not figuratively or allegorically but as an authoritative record of historical truth (Harrison 1998: 92-3). Nor should this record be tampered with. The book that had lain open in the medieval scholar's hands or on his desk, affording endless rereadings and retellings, and ever receptive to the insertion of glosses between the lines or in the margins, was now packaged as a complete object, bound between front and back covers and lying closed upon the shelf (Candler 2006: 12, 32). So too, nature was to be regarded as a closed book: a book already written from beginning to end, whose secrets could be prised out only through rigorous investigation in which every discovery represented not so much a revelation as a breakthrough. It was in this spirit that Bacon insisted on an absolute distinction between dreams of the imagination and patterns of the world. Nature, too, was to be read literally, by appeal to nothing but the facts. While it was assumed that the intricate patterns and mechanisms to be found there had been authored by God and were an index of His omnipotence, there was never any suggestion that they could open up to an experience of divine revelation. No image of God was to be seen in the face of Nature, only mute testimony to His intelligence and handiwork (Bono 1995: 193). For Bacon and his contemporaries, as Harrison puts it, 'Nature is no longer an autobiographical text, in which direct references to the author may be found. It is more like a mathematical treatise, which has no meaning as such, and does not speak directly of its author, but from which we can make inferences about certain of the qualities of the person who produced it' (1998: 203).

I wish to draw attention, in particular, to two corollaries of this transition in ways of reading the natural world. The first concerns performance. I have shown how for medieval readers, meaning was generated in the vocal-gestural activity of reading *out* (see also Cavallo 1999: 74). Doing and knowing, here, were as clearly coupled as chewing and digestion – an analogy explicitly drawn in the ancient characterization of thinking as rumination. To ruminate, we still say, is to chew things over – as cattle chew the cud – and to digest their meanings (Carruthers 1990: 164-5; Hamesse 1999: 104; Ingold 2007: 17). Moreover, medieval people, as we have seen, would have read the book of nature in the same manner, through their practices of wayfaring. Reading the voices of nature, of the more-than-human world, people were advised by them and would follow this advice, in parallel with their own experience, in laying down a path. With a sensibility attuned by an intimate perceptual engagement with their surroundings, they could *tell*, not only of what has been, but also of what will come to pass. Thus, knowledge of nature was forged in movement, in the course of going about in it. This knowledge was performative in the strict sense that it was *formed through* the comings and goings of inhabitants. Reading as performance, in short, was both word-forming and

world-forming. As the case of the Ojibwa and the Thunder Bird clearly demonstrates, in a way of knowing that is performative – that *goes along* – any boundaries between self and other or between mind and world, far from being set in stone, are provisional and fundamentally insecure.

In a science constructed in the spirit of Bacon, by contrast, to know is no longer to join *with* the world in performance but to be informed *by* what is already set down there. Significantly, the analogy with hunting persisted from reading the old book of nature to reading the new. Indeed one of the most detailed elaborations of the hunting metaphor came from Bacon himself, who compared his experimental method to the way a hunter tracks his prey, guided by footsteps and signs (Eamon 1994: 283). The reappearance of the metaphor over two centuries later, in Kekulé's advice to the aspiring scientist to 'note every footprint, every bent twig, every fallen leaf', is a measure of its resilience. However, the image of the hunter had subtly changed: no longer a follower of traditional tracks and trails, he had become an explorer of wild and uncharted territories, a civilizer, who would bring these domains – and the creatures they contained – under his control. In short, rather than making his way through a familiar terrain that is continually unfolding, in which neither words nor works are ever the same twice, the scientist sets out to map a *terra incognita* that is ready-made – that is to discover, through some process of decoding or deciphering, what exists already in fact and *in toto*. The book of nature having been *in*-scribed by the Creator in the language of things, the task of the scientist – for Bacon, as indeed for Galileo – was to *de*-in-scribe, or in a word, to 'describe' what was written there.[11] This is to obtain knowledge not by reading *out* but by reading *off*. It entails a shift, as Candler puts it, 'from a story told and performed (with the whole of its body) to a text seen and interpreted' (2006: 10). And from the moment when the former gave way to the latter, the world ceased to offer counsel or advice and became instead a repository of data that, in themselves, afforded no guidance on what should be done with them. The facts are one thing, values quite another, and the latter had their source not in nature but in human society. Thenceforth, wisdom took second place to information.

The second corollary takes us back to the idea that animals and other beings of the more-than-human world were known in medieval times by their traditions, as skeins of stories, depictions, and observations. To track an animal in the book of nature was like following a line of text. But just as the introduction of word-spacing broke the line into segments, so also – in the book of nature – creatures began to appear as discrete, bounded entities rather than as ever-extending lines of becoming. Nature thus became amenable to the project not of trail-following but of classification (Clough 2013). The lines were broken, but the resulting objects could be ordered and arranged, on the basis of perceived likeness or difference, into the compartments of a taxonomy. One could speak, for the first time, of the building blocks of nature, rather than its weave, and of its architectonics. Nature, in short, was perceived to be built up from elements rather than woven from lines. And the creatures of this natural world were known no longer as traditions but as taxa. Those creatures, however, that were known *only* by their traditions, and for which no corroborating evidence could be found in the facts of nature, fell through the cracks. There are no dragons or Thunder Birds in scientific taxonomies. It is not just that they *do not* exist in the new book of nature; they *cannot*, since their story-bound constitution is fundamentally at odds with the project of classification. Dragons, along with other beings that rear up or make their presence felt along the ways of the world, can be told but they cannot be categorized. Nor can they

be precisely located, as on a cartographic map. Just as they fell through the cracks of taxonomy, so also they were 'pushed into the wings', as Michel de Certeau (1984: 120-1) put it, of a scientific cartography that had no place for the movements and itineraries of life. The same is true of experiences of fear, and of the sounds of thunder. They, too, can be neither classified nor mapped. But this does not make them any less real for a person who is frightened or caught in the eye of a storm.

Science and silence

It seems, then, that as the pages lost their voice with the onset of the modern era, so the book of nature was also silenced. No longer does it speak to us, or tell us things. And yet this allegedly silent nature can be, and often is, a deafeningly noisy place. As philosopher Stephen Vogel (2006) observes, the world of nature abounds in movement and gesture, much of which is manifested as sound: think of the clap of thunder and the howling of the wind, the cracking of ice and the roar of the waterfall, the rustling of trees and the calls of birds. We may furthermore admit that at one level, human talk may also be understood as vocal gesture, and that the voice manifests human presence just as the call manifests the presence of the bird and the clap the presence of thunder. On this level, voice, call, and thunder are ontologically equivalent: as the voice *is* human being in its sonic manifestation, so the call *is* the bird and the clap *is* thunder. Yet none of this, Vogel maintains, warrants the conclusion that natural entities actually *converse* with human beings, let alone with one another. This is for two principal reasons. Firstly, conversation requires participants to attend and respond, in turn, to one another. Humans do indeed attend and respond to the sounds of nature: they listen out for bird-calls and are moved, even terrified, by thunder. But does nature, Vogel asks, respond to us? 'Do the self-speaking entities we attend and respond to in nature ever give us their full attention ... , engage us, respond to our claims?' The answer, he is convinced, is 'no' (Vogel 2006: 148). The sounds of nature, he suggests, are more like the commands of a monarch who is deaf to his subjects but compels their obedience. Secondly, a conversation is necessarily *about* something (Vogel 2006: 151-2). It enables participants to compare each other's perceptions of the world in the common task of figuring out how it actually *is*. Human interlocutors do this, but birds, trees, rivers, thunder, and the winds do not. It is not that they are irresponsible interlocutors; rather, they are not interlocutors at all (Vogel 2006: 157).

For Vogel, then, the silence of nature means that however much noise it makes, it takes no part in the conversations we hold about it. It might sound to us *as if* nature is speaking, but that is a delusion. 'I have listened carefully', writes Vogel, 'and I hear nothing' (2006: 167). Recall the old Ojibwa man and the Thunder Bird. He thought the thunder was speaking to him, but could not comprehend what it said. Was this a failure of translation, as Hallowell seems to suggest? I have argued that it was a failure of empathy. For Vogel, however, had the old man comprehended thunder's speech, he would have succeeded neither in translating it nor in empathizing with it. He would rather have performed an act of ventriloquism. For whereas the translator speaks for another but in his own tongue, the ventriloquist projects his own words onto a mute object while creating the illusion that it is the object speaking for itself (Vogel 2006: 162). This charge of ventriloquism is the foundation for the scientific abhorrence of anthropomorphism, where those who claim empathy with nonhuman creatures, or to know what they are feeling, stand accused of projecting their own thoughts and sentiments onto their unwitting subjects. The accusation, however, has not gone

unchallenged. In a debate conducted in the pages of the journal *Environmental Values*, Nicole Klenk (2008) has entered on the other side. She replies that nonhumans *can and do* respond to human voice, gesture, and presence in ways that are meaningful both to them and to us.

It is true that nonhumans may not compare their perceptions of the environment with humans in a collaborative effort to establish the truth of what is actually 'out there'. But to insist that conversations can only take this form, Klenk argues, is to take such a narrow view of conversation that it would exclude most of what we commonly call conversation in the human world. For most people, most of the time, conversation is a matter of understanding what others are telling us – of 'getting the story right', not of verifying the rightness of the story (Klenk 2008: 333). Thus human beings who take it upon themselves to render in words what nature is saying are indeed translators and not ventriloquists. For Klenk, this is precisely what happens in scientific work. Were this not the case, she concludes, scientific interpretations would be mere fictions created through dialogue among humans, rather than the results of careful interaction with – and observation of – components of the natural world. But in this, I believe, Klenk is mistaken. Or, more to the point, she is mistaken so long as we remain bound by the methodological protocols of normal science. For the claim of science is that as a specialized knowledge practice, it *does* seek to verify the rightness of the story, rather than merely getting the story right. Ever since Bacon, science has insisted on discovering the truth of what is there, and thus on the strict separation of fact and interpretation. Reading what is *on* the lines of the book of nature, rather than between them, the one thing that scientists insist they do *not* do is what Klenk takes to be their number one priority: 'to listen to the voices of those beings they interact with' (2008: 334).[12] Arguably, indeed, scientists do all they can to *avoid* listening, for fear that it would interfere with or compromise the objectivity of their results.

So there is, I contend, a real parallel in the modern constitution between the book of nature and the nature of the book, each understood as a completed work whose contents can be deciphered by those with the keys to do so. The parallel lies in the idea that both are to be read in silence: not in the course of an ongoing conversation whose manifold participants open up to one another and whose stories intertwine, but as a record of results that – rendered inert and impassive, in objective and objectified forms – have turned their back on us, presenting to our inspection only what Mae-Wan Ho has called an 'opaque, flat, frozen surface of literalness' (1991: 348). To science, the facts are given; they comprise the 'data'. But the world does not ostensibly give of itself to science as part of any offering or commitment. What is 'given', in science, is that which has fallen out of circulation and has settled as a kind of residue, cast off from the give and take of life. It is this residue – dredged, sampled, and purified – that is then subjected to a process of analysis, the end-results of which appear on the written page in the forms of words, figures, and diagrams. Thus the knowledge so constituted is created as an overlay or wrap-around, on the outside of being. Having silenced the world, we find knowledge in the silence of the book.

Knowing in being

The very concept of the human, in its modern incarnation, expresses the dilemma of a creature that can know the world of which it is existentially a part only by taking leave of it. Yet in our experience as inhabitants, moving through the world rather than roaming its outer surface, our knowledge is not built up as an external accretion but

grows and unfolds from the very inside of our earthly being. We grow into the world, as the world grows in us (Ingold 2011: 6). Perhaps this grounding of knowing in being lies at the heart of the kind of sensibility we are apt to call 'religious'. It is all the more ironic, then, that leaders of the Reformation should have campaigned *in the name of religion* to turn the relation between knowing and being inside out. In so doing, they assisted materially in the birth of empirical science. As Harrison observes (1998: 268), the reformists' stress on the ostensive truth of words and works, while proceeding from the purest of religious motives, inadvertently set in train a process that would eventually undermine the biblical authority they were so keen to promote. Inevitably, the religion of the reformists was trumped by the very science it unloosed. For in any contest over the facts, science is bound to win, and religion to lose, leaving the puzzle of why people – including many scientists – tenaciously adhere to representations of reality that are demonstrably false.

Yet questions about which can better *represent* the world, religion or science, are wrongly posed, for the real contest lies elsewhere. It turns on whether our ways of knowing and imagining are enshrined within an existential commitment to the world in which we find ourselves. It is a contest, in Candler's (2006: 30-40) terms, between the 'grammar of representation', which disowns such commitment, and the 'grammar of participation', which depends on it. Philosopher Michel Serres (1995: 47) draws our attention to the derivation of 'religion' – according to an interpretation attributed to Cicero – from the Latin *re-legere*, 'to re-read', in that sense of reading which we have already identified as taking counsel, and of being receptive to what one's textual interlocutors have to offer. What, then, is its opposite? It is *neg-legere*: 'to not-read'. It is to fail to take heed, to neglect or cast aside those offerings, to refuse the commitments that their acceptance would entail. 'Whoever has no religion', Serres concludes, 'should not be called an atheist or unbeliever, but negligent' (1995: 48).[13] *The opposite of religion, then, is negligence.* But if re-readings or re-tellings, cast in the performative grammar of participation, are refracted through the distorting lens of a cognitive grammar of representation that neglects or denies, a priori, the very commitments on which participation depends, then they are bound to be thrown up as a spectrum of apparently irrational beliefs in entities such as 'spirits' – and, of course, dragons – which, if they existed in fact, would violate obvious principles of physical or biological causation.[14]

Just such a fate was suffered by one of the more celebrated dragons of anthropological literature – the one that Filate, an old man among the Dorze of southern Ethiopia, challenged anthropologist Dan Sperber to kill (Sperber 1985: 35, 60-3). It was reputedly gold all over, had a heart of gold and one horn on the nape of its neck, and lived not far away. For the rational anthropologist – a stranger to participation, commitment, and the passion that infuses it, or, in a word, to *faith* – Filate's challenge evidenced 'a certain representational belief of semi-propositional content' (meaning that the content itself was but partially understood and open to multiple interpretations). Yet as John Morton has shown in a critical review, to dismiss Filate's 'heartfelt conviction' concerning the dragon's existence in these terms 'is clearly to do some violence to that conviction, disposing in particular with its affective qualities'. For like the dragon encountered by the monk in the story of St Benedict, Filate's vision was, in Morton's reappraisal, the outward form of his 'inner emotional state' (Morton 1986: 74-7). The dragon was a *topos* in the field of participation, not a half-baked proposition in the field of representation.

As this example shows, comparisons of religion and science in terms of the tenacity of apparently irrational beliefs build a stance of denial into their founding axioms – a denial, amongst their adherents, that in their conscious deliberations, whether scientific or spiritual, the world owes anything to them, or they to the world. In other words, negligence has become the foundation for a debate about the rationality of beliefs *about* the world. But if, to the contrary, it is acknowledged that we owe our very existence to the world, and if the world, at least in some measure, owes its existence to us, then we need to ask instead: what is the nature of these owings, these commitments? 'What do we give back', asks Serres, 'to the objects of our science, from which we take knowledge?' (1995: 38). Or to put the same question in another way, how can our ways of knowing and of imagining let us, and the creatures around us, *be*? For it is surely in their discharge into being that the common ground between religion and science is to be found.

This is where Klenk might be right after all. All science depends on observation, and observation depends in turn on an intimate coupling, in perception and action, of the observer with those aspects of the world that are the focus of attention (Ingold 2011: 75). Perhaps the most striking characteristic of modern science lies in the lengths to which it has gone to deny or cover up the practical, observational commitments on which it depends. To highlight these commitments – to attend to the practices of science rather than its formal prescriptions – means recovering those very experiential and performative engagements which, unwritten and unsung, have fallen through the cracks or been pushed into the wings of scientific conceptualizations. Let us not forget the advice of August Kekulé, to follow every footprint, twig, and fallen leaf. In practice, scientists are as much wayfarers as are people of faith, and must perforce tread where others have gone before, ever attentive and responsive to the rustlings and whisperings of their surroundings. Joining with things in the processes of their formation, rather than merely being informed by what has already precipitated out, practising scientists do not just *collect* but *accept* what the world has to offer them. They may, in deference to official protocols, feign not to listen to the voices of beings around them, but listen they must, if they are to advance beyond the bare pick-up of information towards real understanding. Like it or not, they, too, are beholden to the world. And it is in this more humble profession, rather than in arrogating to itself the exclusive authority to represent a given reality, that scientific inquiry converges with religious sensibility as a way of knowing-in-being. This is the way of imagination.

Let me be clear: to follow this way is not to reach an accommodation between science and religion, nor is it to create a space where religion can flourish alongside science in easy accord, with their labours neatly divided between the spiritual and the material sides of things. In contemporary debates on religion and science, at least in Western societies, declarations to this effect have become almost routine, whether from practising scientists who claim to have embraced religious faith or from reasonable churchmen anxious to appear friendly to science. Such declarations, however, invariably take as their point of departure the very separation I have sought to repair, of the life of the spirit from its material matrix, or of imagination from reality. My contention is precisely the reverse, namely that if it is to be conducted ethically – with care, attentiveness, and commitment, and with due acknowledgement of our debt to the world for what it has to teach us – then science *is* religion in action. And conversely, as a disciplined, systematic but open-ended way of knowing in being, religion *must* at heart be a practice of science.

Where science and religion converge, moreover, so, too, do anthropology and theology. This conclusion points to a certain realignment between the two disciplines. Up to now, as Joel Robbins (2006: 286-7) observes, anthropologists have for the most part approached theology in one or other of two ways. Either they have found in theology an aid to disciplinary self-reflection and critique, in revealing how key concepts such as 'culture', 'nature', 'agency', and even 'religion' have their roots in the Judaeo-Christian tradition. Or they have treated theologians as informants and their writings as just another source of ethnographic data, on the very Christian culture that informs them. Neither approach has dented the division between (ethnographic) data and (social) theory with which contemporary anthropology, in keeping with the protocols of normal science, remains largely compliant. This division, Robbins suggests (after Milbank 1990), is the breakdown product of a decayed theology. There is, however, a third way. It is to turn to others for what they have to teach us of knowing-in-the-world as a form of commitment, of being and letting be, and to find in the ontological and ethical force of this commitment a foundation for hope. It is in this spirit that I turn from the teachings of medieval monasticism to one final example from the circumpolar North.

The Bible and the land

The example comes from a recent study by Peter Loovers (2010), carried out among Teetl'it Gwich'in people living in and around Fort McPherson, in the Canadian Northwest Territories. The study is exceptional in combining a sensitive account of the ways in which people relate to their environment as they hunt, trap, and move around on land and water, with a detailed history of Gwich'in engagements with the written word – above all in the translation and reception of the Christian Bible. The immense work of translation was undertaken by Archdeacon Robert McDonald. Born in 1829 of a Scottish father – an employee of the Hudson's Bay Company – and an Ojibwa mother, McDonald was educated at the Anglican mission school in the Red River settlement and spent a decade serving with the Ojibwa people before embarking, in 1862, on a mission to bring the Anglican faith to the people of the Mackenzie River district. Over the ensuing years, McDonald worked tirelessly to introduce Christian teachings to native Gwich'in communities, and many of the men and women he encountered on his travels became key advisers in helping him to transcribe liturgical texts into their own language, known at the time as Tadukh. For McDonald, the translation of the entire Bible into Tadukh was a lifelong endeavour, and the work was not completed until 1898.

Though the Tadukh Bible was warmly received by the Gwich'in, this reception was not quite as McDonald intended. Unlike his rivals from the Catholic mission, who took a rather more relaxed attitude, McDonald was steeped in the traditions of the reformed church, and believed that the text of the Bible was to be read literally, as the unalterable record of a singular truth that is not open to negotiation. Much to his discomfort, however, many Gwich'in people, including several of McDonald's own pupils, began to experience dreams and visions in which, it seemed, the pages of the Bible were talking to them, issuing instructions and revealing prophecies. These pages spoke with the voices of their elders, the people with whom McDonald had been working in transcribing the text (and whose particular dialectal idiosyncrasies had become incorporated into it), and even with the voice of McDonald himself. Thus for the Gwich'in, to read the Bible was to open up a conversation with these elders, to listen to their voices, to be taught by them, and to learn. For his part, McDonald was mightily displeased, and felt

compelled to denounce the 'false prophecies' that were being mouthed by the people (Loovers 2010: 117). The mismatch between these ways of reading was not, however, confined to the Bible. It has continued to surface in other contexts, notably in the interpretation of treaties and land claims agreements drawn up with officials of the Canadian government. In these cases the dismay was on the side of the Gwich'in, who were surprised to discover that documents which they had thought to open up to ongoing dialogue with those whose voices were incorporated therein were treated by officialdom as set in stone, silent and unyielding (Loovers 2010: 138).

Exactly the same mismatch, as Loovers shows, can be found in ways of reading the land. For colonizers, explorers, scientists, and others who have come to the land from outside, whether on a mission to civilize it, to develop it, to research it, or to appreciate its natural beauty, there is no disputing that what is there is already fixed, awaiting discovery, explanation, and possibly transformation by the hands and minds of men. For the Gwich'in, however, it is quite different. To read the land, for them, is to attend to the multiple clues that reveal the activities and intentions of its manifold human and more-than-human inhabitants. These clues, Loovers tells us, 'include animal movements, trails, old and new camps and cabins, marks on the land, wood, snow and ice conditions in winter, river-banks in summer, and places where events have unfolded' (2010: 300). Wherever they go, Gwich'in are listening, remembering, learning, *taking counsel* from the land. It is their teacher, not just a repository from which can be extracted materials for the construction of propositional knowledge. Thus the land speaks to people with many voices, just as the Bible does.

Should we then go along with Archdeacon McDonald and conclude that such a way of reading the land is equally false, or that it rests on the kinds of delusions to which, in Western colonial eyes, allegedly primitive, native peoples have always been supposed to be prone? Even McDonald, with his Ojibwa upbringing, would have known that there is more to indigenous understandings than this. And so, in light of what I have argued in this article, do we. I have shown how studies of medieval monasticism and of indigenous ontologies point to alternative ways of reading, and of writing, which might allow us once again to take counsel from both the voices of the pages and the world around us, to listen and be advised by what they are telling us, and thereby to heal the rupture between the world and our imagination of it. This healing, I contend, must be a first step towards establishing a more open-ended and sustainable way to live.

NOTES

An initial sketch of this article was presented at the Third Biennial Conference of the European Forum for the Study of Religion and the Environment, University of Chester, 21-4 May 2011, on 'Animals as Religious Subjects'. I subsequently wrote it up for presentation as the Firth Lecture, on the occasion of the conference of the Association of Social Anthropologists at the University of Wales Trinity St David at Lampeter, 13-16 September 2011. I also presented it as a guest lecture at the Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil, on 13 October 2011. The text of the Firth Lecture, following some revision, is available on the ASA website, at *http://www.theasa.org/publications/firth/firth11.pdf* (accessed 15 August 2013), under the title 'Walking with dragons: an anthropological excursion on the wild side'. Since then, the article has continued to evolve; indeed subsequent revisions have been so substantial as to warrant a change of title. In these revisions, I have been assisted and advised by numerous colleagues, and special thanks are due to Nat Barrett, Maan Barua, Brian Brock, Lieve Orye, Koen Stroeken, and Bernd Wannenwetsch, along with two anonymous referees and this journal's editor, Matthew Engelke. I also want to thank Jan Peter Loovers, on whose remarkable doctoral dissertation I draw for the final section. It was my privilege to supervise Peter's work at the University of Aberdeen, alongside my colleague David Anderson, and it was my experience of helping him pull together the sections of his thesis on literacy and living on the land that first planted the idea for the present article in my mind.

[1] Citations from *The great instauration: the plan of the work* and from *The new Organon* are drawn from Volume IV of the standard translation by James Spedding, Robert Leslie Ellis, and Douglas Denon Heath (Bacon 1858). These texts are also available at *http://www.constitution.org/bacon/instauration.htm* and *http://www.constitution.org/bacon/nov_org.htm* (both accessed 15 August 2013).

[2] Here, I develop an argument initially sketched out in Ingold (1997: 238).

[3] To this list could be added the komodo dragon, the largest extant species of lizard in the world, which inhabits the islands of southeastern Indonesia. Though rare, these animals are extremely dangerous, and attacks on humans have increased in recent years.

[4] A full and properly balanced account of medieval cosmology and practice would have to go much further than this. Scholarship on the subject is vast, and defies easy summary. Carruthers (1990; 1998) is an excellent guide to the subject, and to its key literature. I have found inspiration in reading an admittedly narrow selection of this literature, and my present purpose is not to provide a digest or review but rather to show how just some of the ideas that emerge from it help us to think through the issues surrounding imagination and real life.

[5] The citation is from an English translation of Kekulé's address by O. Theodore Benfey (1958). See also Roberts (1989: 75-81).

[6] I have discussed the distinction between translation and empathy at greater length elsewhere, drawing on Hallowell's example (Ingold 2000: 106). For an exploration of the significance of empathy within relations of tutelage, see Gieser (2008).

[7] There were exceptions, of course (Parkes 1999: 92-3), but if anything these proved the rule. Thus Augustine, arriving in Milan in the fourth century, was astonished to observe that Ambrose, then Catholic bishop of the city, would read without making a sound. Though his eyes followed the text, 'his voice and tongue were silent'. Augustine was at a loss to know why, but speculated that it might have been to preserve his voice for public speaking (Augustine 1991: 92-3). Even Ambrose, however, wrote of the *sonus litterarum*, 'the sounds of the letters' (Parkes 1992: 116 fn. 6). For further discussion of this and other examples, see Ingold (2007: 12-18).

[8] On the early medieval sense of reading as taking counsel, see Howe (1992).

[9] I have discussed elsewhere the ways in which the naming and vocalizations of animals enact their own stories (Ingold 2011: 165-75).

[10] For a discussion of the parallel histories of writing and musical notation, and of reading and chant, see Ingold (2007: 6-38).

[11] On Bacon and the 'new *de-in-scriptive* hermeneutics of nature', see Bono (1995: 244).

[12] The exception to this are advocates of Goethean science for whom to engage in scientific study is to 'enter into a conversation with nature [and] listen to what nature has to say' (Holdrege 2005: 31-2). The contempt in which the Goethean approach is held by mainstream science reveals, however, where the latter's priorities lie.

[13] The precise etymology of 'religion' has long been a matter of dispute. Cicero's interpretation was challenged in the fourth century by the Christian writer Lactantius, who claimed that *religare* is a compound of *re* (again) and *ligare* (to bind, fasten, or connect). Religion, then, is a re-binding rather than a re-reading. This claim went on to find favour with Augustine, and in much subsequent scholarship. Since for Serres, however, negligence is as much about reneging on the ties that bind as it is about failing to take heed, the argument still holds, regardless of the etymology we prefer.

[14] There is an ever-growing literature devoted to the question of why the human imagination is primed to come up with, and to place its belief in, entities of this kind. See, for example, Boyer (2000). From the perspective advanced here, this literature, which treats religion as a domain of cognitive illusion, completely misses the point.

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Rêves de dragons : de l'imagination de la vie réelle

Résumé

Le présent article s'appuie sur des études du monasticisme médiéval et des ontologies indigènes du Nord pour montrer comment on pourrait guérir la fracture entre le monde réel et son reflet dans notre imaginaire, qui sous-tend les procédures officielles de la science moderne. Bien que la science n'exclue pas que les rêveries de l'imagination puissent apporter des points de vue nouveaux, elles les bannit néanmoins de la réalité qu'elle cherche à découvrir. Depuis Bacon et Galilée, on considère la nature comme un livre, mais un livre réticent à divulguer ses secrets à ses lecteurs humains. L'idée d'un livre de la nature remonte néanmoins au Moyen Âge. Pour les lecteurs médiévaux, comme pour les chasseurs indigènes, les créatures étaient douées de la parole et pouvaient donner des conseils. Les temps modernes ont réduit le livre au silence. L'auteur suggère ici qu'en reconnaissant la participation de notre imaginaire à un monde plus qu'humain et les obligations qu'elle suppose, nous pourrions concilier investigation scientifique et sensibilité religieuse comme des modes de savoir dans l'être.

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