

# The Poetics of Enquiry in Ronald Duncan's Man

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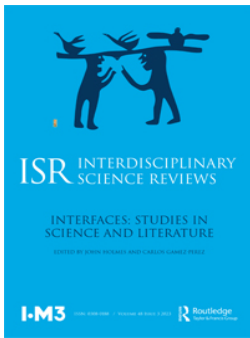
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## The poetics of enquiry in Ronald Duncan's *Man*

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### ABSTRACT

In his cosmological epic *Man*, Ronald Duncan attempted to bridge the perceived divide between science and poetry. To do so, he had to find an aesthetically effective way to incorporate scientific data into poetry while using the form of the modernist long poem to replicate the insatiable processes of enquiry that he saw as defining science itself. Duncan's dialogic engagement with science and scientists instigated in turn the creation of a new kind of reference work, *The Encyclopaedia of Ignorance*, sharing and promoting the same conception of science as *Man*.

### KEYWORDS

Ronald Duncan; epic; encyclopaedia; poetics; science; modernism; cosmology; 'Two Cultures' debate

In 1961, Ronald Duncan (1914–82) experienced what he called 'an emotional crisis'. As he urbanely put it nearly ten years later, 'I found myself having to live alone in a modern luxury flat in London' (1970, 7).<sup>1</sup> By this point in his life, Duncan was forty-seven years old and – although he is no longer widely known – a successful man of letters. In 1938, in his mid-twenties and encouraged by Ezra Pound, he had launched *Townsguard*, 'a lively small quarterly distantly modelled on [T. S.] Eliot's grander *Criterion*' (Moody 2014, 267–68). His first collection of poetry was published in 1941 and in 1950 he had joined Eliot's handpicked list of poets at Faber and Faber. His first play was staged in 1945; in 1946 Benjamin Britten's opera *The Rape of Lucretia*, with a libretto by Duncan, premiered at Glyndebourne; and several more of his experimental dramas would premier to critical acclaim from then on, including *Abelard and Heloise* as recently as November 1960.<sup>2</sup> It was his wife's impatience with Duncan's affair with its lead actress, Virginia Maskell, that precipitated his personal crisis at the height of his professional success.

Duncan's crisis took him from the world of literature and the arts into the sphere of the sciences. To avoid the sense that the walls of his rented flat were closing in on him, he covered them with sheets of paper and began to paint doodles on them obsessively. Looking up at his drawings once they were complete, he had the sensation that what

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<sup>1</sup>All quotations from Duncan are © Ronald Duncan Estate and are reprinted courtesy of University of Exeter Special Collections.

<sup>2</sup>The University of Exeter, which holds Duncan's archive, also hosts a useful introductory website on his life and writings, including a bibliography (<https://specialcollectionsarchive.exeter.ac.uk/exhibits/show/ronaldduncan/bibliography>) and a timeline (<https://specialcollectionsarchive.exeter.ac.uk/exhibits/show/ronaldduncan/timeline>) [accessed 13 December 2022].

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he had drawn were cave paintings and that they had come from some residual memories, deeply buried in his psyche – a portion of his consciousness inherited from countless generations of forebears (1970, 7–8). This experience set Duncan on a quest to understand the origins of human consciousness itself. For the next five years, he largely stopped writing and instead made a sustained study of science. As he later wrote:

My concern with anthropology led me to biology: biology to geology: geology to physics: and my concern with physics, back to psychology, taking a hint from Heisenberg who has remarked that the observer cannot be separated from the observed. (10)

By 1966 Duncan at last felt ready to tackle his investigations in writing. On 17 May, he picked up a couple of fragments of a long poem which he had begun during his initial crisis five years earlier.<sup>3</sup> He would work on this poem for the next eight years, not only charting his reading across the sciences but crafting a new poetics of enquiry in the process.

Duncan called his poem, rather grandly, *Man*, publishing it over several years through his own Rebel Press. Part I, comprising thirteen cantos on cosmology, appeared in 1970, followed a year later by Part II, consisting of twenty cantos meditating on the geological stages of the Earth's history, from the Archaean to the Pleistocene. Part III – nine cantos imagining human prehistory – followed in 1973. The last two parts were issued together in 1974. In them, Duncan attempts 'to assess Man's consciousness and see what development, if any, there has been in it' (1974, 4) across a further 21 cantos on anthropology, key moments of history and reflections on his own life. Once completed, the whole poem came in at over 370 pages long. *Man* is one of the most ambitious poems of the twentieth century. It belongs to the same lineage of long modernist poems as Pound's *Cantos* and Eliot's *Four Quartets*, both of which are alluded to in Duncan's own poem, as well as joining the far longer lineage of cosmological epics running back through Milton and Dante to Lucretius and Hesiod. It has received virtually no critical attention, however. There are many circumstantial reasons for this: the decline in Duncan's public reputation from the early 1960s onwards; the fact that he was always better-known as a playwright; his choice to publish *Man* himself in limited editions; and its sheer length, given his modest standing as a poet. There is also a more intrinsic reason, however, which is the challenge posed both to its readers and to the poet himself by its subject-matter.

In *Man*, Duncan sets out to redress what he calls, in the introduction to its first volume, the 'apartheid' (1970, 10) between poetry and science. He had begun the poem in the wake of C. P. Snow's famous Rede Lecture of 1959. Snow diagnosed a rift between the 'Two Cultures' of scientists and literary intellectuals, which, he argued, 'impoverished' both but especially the latter (1998, 14). Duncan refers obliquely to the 'Two Cultures' debate in his introduction by invoking F. R. Leavis, who had been his supervisor at Cambridge in the 1930s. Alluding to Leavis's ill-tempered repost to Snow in his 1962 Richmond Lecture (2013), Duncan writes that 'Leavis is right: there is only one culture. But', he continues, 'without an awareness of science, the contemporary sensibility is fractured and its literature will become a cul-de-sac' (1970, 10). Although he does not name him, Duncan sides implicitly with Snow against his older

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<sup>3</sup>Ronald Duncan, 'Man: Diary of a Poem 1964–67' [actually 1964–68], Ronald Duncan Archive, University of Exeter Special Collections, EULMS 397/15/1/27, entry for 17 May 1966.

teacher, a position underscored by his remark – retracted in the headnote to Part II of the poem (1971, 5), presumably after objections – that Leavis ‘despised scientists’ (1970, 10). For Duncan even more than for Snow, it is literature that has most to gain from this rapprochement. Science, as he sees it, is largely self-sufficient. When he ‘abandoned literature for science’ in the early 1960s, he says, he ‘found poetry’ in the science itself (10). Unless its ‘amputation’ from science can be healed, however, poetry proper will become ‘increasingly esoteric, amatory doodling, essentially private, if serious still trivial, obscure without depth, basically frivolous even when expressing despair’ (10). This is quite a charge list. Science has its own poetry but, without science, it seems that poetry on its own is barely worth having at all.

Duncan’s introduction closes with the hope that *Man* may serve, ‘if not as a bridge between poetry and science, at least as a plank over the abyss which now yawns between them’ (11). To see how *Man* achieves, indeed exceeds, this objective, we need to examine both how it functions as a poem on the theme of science and how Duncan understands science itself to operate. As a literary artist, Duncan’s initial challenge is how to devise a poetics which can incorporate scientific knowledge, aesthetically as well as intellectually. As he explains in Canto 8 of *Man*:

For if poetry fails, as it is failing,  
 To carry the charge of mathematics; the evocative,  
 The concise formulae of physics, then poetry will become  
 A red dwarf, burned out, provincial,  
 Merely amatory,  
     a trivial document of subjective diahorreah.  
 And if it tries to carry them all,  
     it will become unintelligible. (1970, 49)

As far as Duncan is concerned, poetry as it stands at the end of the 1960s cannot match the cultural, intellectual and imaginative force of science. It lacks both its electric ‘charge’ and its concision – features Duncan suggestively transfers between mathematics and physics, the former better known for its aesthetics, the latter for its applications. If poetry does not take up science as its subject-matter and inspiration, it will subside into something ‘frivial’, a neat coinage uniting the frivolous and the trivial – two terms, along with ‘amatory’, which Duncan would re-use from this passage to denigrate contemporary poetry in his introduction. And yet the poet who attempts to incorporate science into poems – especially as comprehensively as Duncan himself does in *Man*, encompassing anthropology, biology, geology, physics and so on – risks losing the ability to communicate at all.

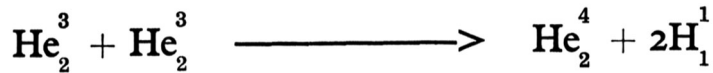
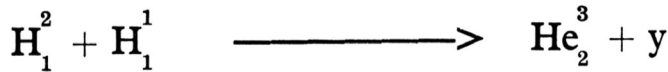
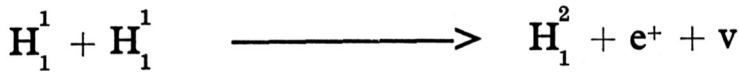
To meet his own standards, Duncan needs at once to understand the science and to enable his reader to appreciate it, otherwise his poem will be to all intents and purposes ‘esoteric’ and ‘private’ after all. As he puts it a few lines on, with impish disrespect for his old mentor, ‘lead me not into Ezra’s temptation: / the lucid phrase illuminating the incoherent thought’ (49). But Duncan is also well aware that science is not static and that poetry has little to offer merely as an increasingly rarefied means of communicating existing knowledge. As well as mastering current scientific knowledge and its uncertainties while capturing the ‘charge’ of science in poetry, Duncan needs to transform the modernist long poem into a form that can embody scientific enquiry in its poetic practice. It is here that *Man* makes its most distinctive contribution, and not only in the poem itself. In the process of creating a

new and aesthetically charged poetics of enquiry that is unique in its capacity for a rigorous and sustained engagement with modern science, Duncan also sparked fresh and reflexive public discussion among scientists as to the nature of science itself.

### 'This too is poetry': Science as Poetry

In Canto 8, Duncan proposes that 'If poetry's purpose is to communicate / Any word or symbol is valid, if it has meaning' (1970, 49). *Man* works on the principle, outlined by Michael André Bernstein in his classic study of twentieth-century American epic *The Tale of the Tribe*, 'that the modern verse epic is a form sufficiently strong to absorb large chunks of factual data into its own texture [...] without ceasing to be poetry' (1980, 40). Because the data in this case is scientific, it often takes non-linguistic forms of expression that even the modernist epic can find hard to digest. Where Pound deploys Chinese ideograms in *The Cantos*, Duncan incorporates mathematical formulae and chemical notation into *Man*. Canto 8 is titled 'Helios'. It opens with a series of chemical reactions taking place in the Sun:

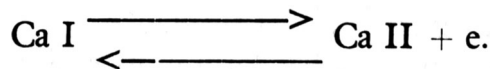
The SUN:



Where  $\nu$  is neutrino,  $\gamma$  the emission of gamma rays;  
The transmutation of Hydrogen into Helium:  
the SUN. (1970, 48)

As the Canto progresses, Duncan cites Einstein's famous formula 'E = mc<sup>2</sup>', calling it 'his lyric of meaning' (49), and goes on to assert:

This too is poetry:



Where Ca I denotes the neutral atom, Ca II the ionised atom,  
and e the electron. (51)

Passages like this mount at least three problems to the reader of Duncan's poem, and therefore to Duncan himself. The first and most obvious is the problem of comprehension. E = mc<sup>2</sup> is a familiar point of reference within the wider culture, but the same does not go for chemical reactions involving Hydrogen, Helium and Calcium. Even if we

recognize the chemical symbols H, He and Ca, the superscripts and subscripts are not explained and nor are the processes represented by the arrows. Like Pound's ideograms, the notation is obscure, but where Pound tends to translate the concepts epitomized in his ideograms at key moments in his poem, at best Duncan can translate his formulae into the language of atomic chemistry itself. Terms such as 'neutrino', 'neutral atom' and 'ionised atom' risk being trapped within a closed linguistic loop where there is no everyday language capable of explaining them. Even if a reader knows what a neutrino is, for instance, unless they understand chemical notation they will not know what its function is either in the reactions themselves or within the poem.

The second problem is an auditory one. How do lines like these sound? Again, the comparison with Pound's ideograms is instructive. Pound does not make it easy for his readers, but nonetheless at several points in *The Cantos* he glosses not only the meanings but the sounds of his Chinese symbols. The challenge of reading chemical reactions aloud – let alone the molecular structure of ethanol represented diagrammatically in Canto 17 (1971, 51), to give another example – shows how far Duncan stretches the definition and form of poetry. As components of a work of art, his formulae, reactions and diagrams are for many readers at best visually arresting puzzles – again, not unlike Pound's ideograms – which we must rely on the rest of the poem to decode.

The third challenge Duncan faces is how to ensure that his readers experience accounts of scientific findings as poetry at all. He repeatedly insists that science is poetry in its own right. In Canto 3, he asks 'What is mathematics / but poetry written with concision?' (1970, 28) At the end of Canto 15, he declares 'Geology is poetry / Where poetry is true' (1971, 41), while at the beginning of Canto 16, after writing down the reaction for the formation of sugar, he states 'Chemistry is poetry / only more accurately written' (43). Through these assertions, Duncan appears to declare his aesthetic preferences and programme, but they remain nonetheless merely assertions. We may be told that  $E = mc^2$  is a lyric, but that does not mean we experience it as a lyric. Apart from the lineation, 'Where  $\nu$  is neutrino,  $\gamma$  the emission of gamma rays' and 'Where Ca I denotes the neutral atom, Ca II the ionised atom' are indistinguishable from quotations from a chemistry textbook and seem, even by those standards, too baldly prosaic to qualify as found poetry.

Canto 8 is a relatively extreme example within the poem, but it is not atypical of the difficulties that Duncan faces in turning science into poetry. He remains acutely aware of the aesthetic problem he is setting himself. One of the most telling statements of this problem comes in Part II of the poem in Canto 16:

(None of this is the proper subject for poetry? Then what is?  
 This the ribs: let others flesh them: find the rhetoric,  
 Forge the imagery: the rest, cosmetics, decoration. This, the ribs;  
 walk on ruthlessly, do not fall into the Sitwell.  
 Your purpose: to extend the range of your own ignorance.  
 Your destination: ignorance. It will be all you know.  
 And whatever your feelings are  
 try not to put them on this page.  
 I am sick to death of your feelings: try to make poetry  
 Think again. Not self-expression: self-suppression.  
 And besides, since she brings you her unhappiness,  
 you will have her wholly in the end.) (1971, 45)

The parentheses enclosing this passage seem to mark it out as a digression. At the same time, they isolate it on the page, making the reader take notice. While these lines appear to be addressed to Duncan himself, they are also a call to arms to other poets, and they answer too other sceptical readers who may be doubting his transfusion of science into poetry. In the process, they both affirm and give the lie to Duncan's professed aesthetic.

In Duncan's opening question here, 'this' refers to the discussion of the chemical origins of life in its specific context within Canto 16, but it also acts as a metonymy for science at large across the poem as a whole. In responding to one rhetorical question with another, Duncan implicitly insists that science is not only a 'proper subject for poetry' but the most important subject for it to tackle. At the same time, he recognizes that, like the building blocks of life in the Archaean – the geological eon covered by Cantos 14–17 – his own endeavours to fashion poetry from this subject-matter are only provisional and that others will need to carry on and complete his poetic experiment. His metaphors are themselves resonant of science, the 'ribs' suggesting both vertebrate anatomy to be fleshed out and the frame of a vessel or machine to be forged. The equipose of Duncan's repeated colons leaves it ambiguous whether it falls to him or to his successors to 'find the rhetoric' and 'Forge the imagery'. Equally, the 'cosmetics' and 'decoration' might refer dismissively to the 'rest' of modern poetry or to the remaining task of fleshing out the fundamental poetic innovation he has or will have already made. Either way, Duncan casts himself as a masculine pioneer, ruthlessly pursuing his quest, working his poetry like steel while other poets indulge in nothing more than a decorative art. The gendered dynamic here is reinforced by the quip 'do not fall into the Sitwell'. In 1932, the year before Duncan went up to study with him at Cambridge, Leavis had notoriously dismissed the Sitwell family as belonging 'to the history of publicity rather than of poetry' ([1950] 1972, 58). This remark had a permanent effect on their reputation as poets, especially on Edith Sitwell, who stands here in Duncan's poem, along with her brothers, for the twin dangers of trivializing poetry and merely publicizing science.

For all its conventional gendering, Duncan's avowal of his commitment to his poetic mission here is potentially compelling, making him the hero of his own epic. The power of this interjection into his own poem owes still more, however, to the rapidity with which this defiant, masculine persona collapses. Ostensibly, his poetic programme stands in stark contrast to confessional poetry, rejecting 'self-expression' for 'self-suppression' and insisting on thought not feeling as what matters in poetry. Yet Duncan's outburst 'I am sick to death of your feelings' is itself confessional, whether addressed to himself or to other contemporary poets, while the enigmatic final lines of this aside fail utterly as an act of self-suppression, or rather they enact that failure. After the domestic crisis from which his poem was to grow had been resolved, Duncan's marriage was patched up, Maskell too got married, and the two couples remained on good terms. Maskell went on to experience intense postnatal depression, however, and killed herself in January 1968. Duncan wrote a long self-excoriating response to her death in the notebook he was keeping for *Man* and her ghost haunts these lines.<sup>4</sup> Indeed, there

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<sup>4</sup>EULMS 397/15/1/27, entry for 7 February 1968.



are glancing references to this tragedy throughout the poem, reborn as it is from a 'brain now plected with this grief' (1971, 54).

Through such understated, often immensely touching asides, Duncan shows how his quest for truth becomes a way of trying to make sense of Maskell's death and to displace his own survivor's guilt. As he writes in Canto 17:

Not knowing she lay dead, this Canto begun so objectively,  
Ending subjectively, proving conclusively,  
we are a mechanism producing consciousness,  
Conscious of pain. (1971, 58)

Moments like these, where the tension between the scientific language of proof and mechanism and the wrenching experience of grief is palpable, counter-balance the poem's sustained objectivity, giving it precisely the humane quality which Duncan professes to reject. Paradoxically, it is this persistent sense of a personal quest for meaning that invests Duncan's studiously impersonal scientific language and notation with poetic freight. As readers, we may not be able to vocalize his poetry or even to decode its meanings, but we can recognize how it participates in a drive to understand the world that is approached with admirable rigour but also with something close to desperation. Duncan's failure to achieve his professed ambition to rid poetry of feelings ultimately enables his poem itself to succeed. His determination 'to make poetry / Think again' begins as a cultural intervention prompted by his conviction that it is only through science that we can come to understand ourselves. After Maskell's suicide, it becomes an urgent attempt to re-establish meaning in a world which has been voided of it by personal tragedy. To return to Duncan's critique of contemporary poetry in his introduction, the poetry that emerges from this impetus does indeed bridge the gap between essentially private experiences and science as a public discourse. Its obscurity is superficial, while its depth is real and its expressions of despair, far from seeming frivolous, ensure that its poetics of enquiry remains anchored in fundamental human needs and feelings, no matter how much Duncan claims to disavow them.

### **'The ask aches in me': The Modernist Epic as an Encyclopaedia of Ignorance**

Duncan's heroic quest for understanding is all the more compelling because it is doomed from the outset. *Man* opens with a vainglorious, hubristic, even blasphemous avowal of humanity's unique significance and capability, epitomized in these lines from its short first canto:

I am: God I shall become;  
For I am the only conscious thing  
In an unconscious universe;  
I am the dreamer who can dream  
he is dreaming;  
I am the miracle: man. (1970, 13)

This posturing is exposed and renounced by Duncan as early as the beginning of Canto 2:

The ask aches in me.

I write because I know  
 Nothing. The ask aches in me.  
 Do not read this, if you are looking for answers.  
 If you follow me, you will reach nowhere.  
 I can only mislead you.  
     I will only take you  
 To where you are. My revelation  
 Is your reflection. I write because I know  
 That I do not know. The ask aches in me. (16)

The title of this canto is ‘Asunieien’, meaning ‘Ignorance’ in Greek. Here Duncan’s speaker offers nothing beyond a perpetually doomed quest for knowledge and understanding. From this bleak second opening, it seems as though the object of this quest is not, in fact, answers so much as an anodyne for the ache of ignorance itself. All Duncan can promise us is a trail leading nowhere. As he wryly comments a few lines on down the page, and again in Canto 8, ‘Not very encouraging’ (16, 49). Even so, he is unwilling to settle for preconceived ideas as the conclusion of this process of enquiry. It must be rigorous otherwise it invalidates itself by ending in self-deception. Hence his brutal honesty with his reader in Canto 2 and his repudiation of Pound as a model in Canto 8.

In his aside in Canto 16, Duncan declares that his purpose is ‘to extend the range of [his] own ignorance’, with no ultimate destination beyond ignorance itself. If this seems defeatist, it does not deter him from pursuing his enquiries for another forty-seven cantos and the best part of 250 more pages. Building on the precedents of *The Cantos* and *Four Quartets*, along with other modernist epics such as David Jones’s *The Anathemata*, Duncan’s *Man* not only encompasses scientific knowledge but replicates science’s own endless process of enquiry. As his poem unfolds, Duncan masters, rehearses and interrogates successive hypotheses concerning cosmology, atomic physics, evolution and biochemistry. One relatively condensed example comes in Canto 9, ‘Erase’, which translates as ‘to the Earth’, moving on from ‘Helios’, the Sun. In this canto Duncan asks ‘Why the inner planets, Earth and Mars / Are composed mainly of rock and iron / and the other large planets are made up of neon and methane?’ (1970, 65–66). He goes on to work through a series of proposed answers:

Probable that iron, being heavy, would condense first.  
 Probable that this element was only small part of original disk of gas.  
 Suggesting planets which condensed from iron  
 would lie nearer to the sun  
     would be smaller than those planets made up of lighter materials.  
 Supposition observable.

But the identity of sticking agent eludes.  
 Bondi: ice; Urey: slushy snow; Hoyle: pitch, tar  
 or some hydrocarbon formed after bulk of hydrogen had escaped.  
 Possibly frozen hydrogen to which dust adhered  
 By surface tension? Or perhaps molecular magnetic field?  
 Question (1968) wide open.  
     Though vague theory based on condensation,  
 Aggregation of dust to pellets to planets

generally supported: details unknown ...

A fishing net composed of holes. Let us edit an Encyclopaedia of what we do not know. Our questions define us. (66)

Like much of *Man*, these lines read less like poetry as we might expect it and more like the jottings of a mind trying to figure out the current state of scientific knowledge. Yet there are signs of poetic craft all the same. Although relatively secure, the hypothesis in the first verse paragraph remains provisional, as the foregrounding of ‘probable’, ‘suggesting’ and ‘would’ across the first five lines repeatedly reminds us. The inferences tally with data – they are ‘observable’ – but they remain only a ‘supposition’, that word too stressed by being placed at the beginning of the line. As we move into the second paragraph, it becomes clear that even this provisional finding is incomplete because scientists can only speculate and crucially do not yet agree on what it is that binds the solid matter of embryonic planets together. Duncan at once rehearses these speculations and captures the disagreement in a single line, summarizing in a word or two the answers offered by the British cosmologists Hermann Bondi and Fred Hoyle and the American chemist Harold Clayton Urey. All these scientists can agree on thus far amounts only to a ‘vague theory’, although Duncan is scrupulous in noting that this is the state of knowledge at a particular date and not necessarily where things will remain.

Duncan’s insistence at the end of this passage that ‘Our questions define us’ runs throughout *Man*, from the ache to ask at the beginning of Canto 2 to the end of the poem, where he remarks, in one of the last cantos, ‘The only meaning for life is to ask these questions/Even if they’ve no answer’ (1974, 99). His invitation to edit ‘an Encyclopaedia / of what we do not know’ may seem like a sardonic joke, but he clearly meant it, as his next major project, once *Man* was finally complete, was to edit in collaboration with Miranda Weston-Smith just such an encyclopaedia. Where ‘The usual encyclopaedia states what we know’, *The Encyclopaedia of Ignorance*, published in two volumes in 1977, comprises over fifty brief essays by leading scientists ‘on matters which lie on the edge of knowledge’ (Duncan and Weston-Smith 1978, ix). The coverage is comprehensive, with the first volume tackling the physical and mathematical sciences and the second the life and earth sciences. The list of contributors is also impressive. Not far off a who’s who of transatlantic science in the 1970s, it includes prize-winning scientists across all disciplines, amongst them Nobel laureates past (John Kendrew, Francis Crick and Linus Pauling) and future (Anthony Leggett, Abdus Salam, Roger Penrose and Roger Sperry) along with other still familiar names such as John Maynard Smith and a young Paul Davies. Predictably, if dispiritingly, apart from Weston-Smith all the contributors are men.

Many of the contributors to *The Encyclopaedia of Ignorance* feature in the bibliography that Duncan gives at the end of Part II of *Man* (1971, 122–23), and three of them are among the scientific mentors he specifically names in the poem. One of these is Bondi, to whom he dedicates Part I, calling him ‘the better mind’ (1970, 5) and ‘a poet or I’ve not met one’ (29). Bondi was Director-General of the European Space Research Organization from 1967 to 1971 when Duncan was consulting him about his research for *Man*. He is cast in the poem itself as Virgil to Duncan’s Dante in Canto 12, leading him through ‘A hell [...] / where all the curious are confined / within the limits of their mind’ (80). The other two mentors who would go on to

write articles for the *Encyclopaedia* are Francis Crick, who had won the Nobel Prize for Medicine in 1962 for his work on DNA – and whom Duncan privately described as ‘a better poet than I am’, in line with his elevation of scientific findings themselves into poetry – and Preston Cloud Jr, who had served as the Chief Palaeontologist of the US Geological Survey throughout the 1950s.<sup>5</sup> Along with the immunologist and public intellectual Sir Peter Medawar (another Nobel Prize winner), they are both thanked by Duncan for their advice and encouragement in the headnote to Part II of the poem (1971, 5).

A comparison of Duncan’s two large projects across the 1960s and 1970s reveals a remarkable consistency in their outlook and ambition, for all that one is an epic poem and the other a radically new kind of work of reference. The essays contributed by Duncan’s scientific mentors, among others, to *The Encyclopaedia of Ignorance* affirm a philosophy of science that is consistent with Duncan’s own as it is spelled out in Canto 14 of *Man*:

A hypothesis: a step, not a destination.  
Never a destination, there is no destination.  
Truth, like the horizon, inevitably recedes  
As we approach it, moved by our own perception. (1971, 22)

In their brief editorial preface to the *Encyclopaedia*, Duncan and Weston-Smith repeat the same phrasing, declaring that ‘the horizon of the unknown recedes as we approach it’ (1978, ix). Cloud uses an analogous metaphor in beginning his essay, ‘The Veils of Gaia’, on open questions in the science of the Earth’s crust:

Knowledge advances like the concentric ripples that spread outward from a pebble tossed into a mill pond. Its expanding front is in contact with an ever-widening periphery of ignorance as growing comprehension generates new and more subtle questions. (1978, 388)

For Cloud, as for Duncan, the expansion of knowledge inevitably expands our field of ignorance at the same time. At the beginning of his essay, ‘Developmental Biology’, Crick provides a vivid illustration of the ignorance that lies in plain sight, pointing out that, while ‘We understand how an organism can build molecules [...] yet we do not understand how it builds a flower or a hand or an eye, all of which are plainly visible to us’ (1978, 300). For his part, Bondi warns in ‘The Lure of Completeness’ that ‘Science is by its nature inexhaustible’ and that, therefore, ‘to aim at such completeness of description’ as is posited by ‘a “unified field theory” or a “world equation”’ is not only ‘pointless and of no scientific significance’ but ‘mistaken in principle’ (1978, 8). These are all, of course, commissioned essays with ignorance as their theme. Nonetheless, the fact that these and so many other scientific luminaries were keen to contribute to it suggests that Duncan’s project in editing *The Encyclopaedia of Ignorance* chimed with their own view of the project of science. At the same time, the tone of Bondi’s essay in particular, which is reproduced to a greater or lesser extent throughout the volume, shows that the *Encyclopaedia* provided a venue not merely for the rehearsal of paradigmatic consensus but also for polemic interventions by practising scientists into the conceptualization of science itself, as well as an opportunity to set the agenda in their own specialist fields.

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<sup>5</sup>EULMS 397/15/1/27, entry for 23 March 1968.

To accept science as conceived by Duncan and his mentors is to relinquish the hope of any final answers. What it offers instead is an endless process of ever-widening enquiry. In their preface, Duncan and Weston-Smith posit ‘that our concepts are our limiting factor. Perhaps imagination is a part of our technology? Perhaps some answers depend only on asking the correct question?’ (1978, ix) Cloud agrees, implicitly connecting the imagination with the act of questioning through the mythological framing of his essay:

Gaia (or Gaea), Mycenaean goddess of the earth, like a veiled dancer, reveals her secrets only to the skilled and persistent explorer. Geologists, geophysicists, oceanographers and other members of her priesthood must learn how to ask the right questions, how to identify and probe the critical areas. (1978, 388)

Aside from their common point of reference, Cloud’s essay seems to have little connection to James Lovelock’s Gaia hypothesis which was beginning to gain some notice if as yet little traction at much the same time. Instead his Gaia is a return to the conventional classical image of Nature as a veiled goddess, erotically tantalizing the natural philosopher with glimpses of knowledge yet never revealing herself in full. Like Duncan’s poet, ruthlessly forging ahead with his quest, the scientist here is implicitly gendered male. He is cast by Cloud, perhaps unwittingly, as at once a priest and a pervert, keen to probe his goddess’s critical areas. Fatuous as it is, Cloud’s myth of science as the worship of a tantalizing Gaia effectively embodies the conception of science that he shares with Duncan. For them both, science requires an imaginative openness to possibilities which exceed the limits of our understanding at any given time. Without this, it is impossible to know ‘how to ask the right questions’. With it, the range of productive questions that can be asked is literally endless.

In ‘The Veils of Gaia’, Cloud proposes that geology will always be necessary not only for its practical applications but ‘to satisfy mankind’s thirst for the poetry of planetary evolution’ (1978, 390). In Canto 28 of *Man* – dedicated to the Paleocene, the first epoch of the so-called Age of Mammals after the extinction of the dinosaurs – Duncan connects the unquenchable thirst for knowledge with evolution itself:

Variety the condition  
Of persistence. The process  
To persist. Process not a purpose.  
Our purpose is to seek,  
That search is what we’ll find.  
Flesh is heir to? The inheritance: the mind. (1971, 99)

Following Darwin, Duncan sees evolution not as a purpose but as a process of a ‘thousand natural shocks’ (Shakespeare 2019, 57), to complete the quotation from *Hamlet* that he alludes to in his final rhetorical question. The product of evolution is the conscious mind, but consciousness too exists as a process, not an object. This does not mean, however, that we cannot make our own purposes. It is through the act of enquiry that we activate our minds, so the function of enquiry is not to find but rather to seek. In a rare rhyme, Duncan reinforces this message, as what we find through seeking is the mind.

As this rhyme reminds us, the poem itself is undertaking this same search. At the same time, the search is being undertaken through a poem. If ‘imagination is a part of our technology’, so too is poetry. Understood as a process not a product, an act of making not

something finally made, as a poem *Man* is analogous to both Darwinian evolution and science itself. Building on the foundations of earlier modernist epics, Duncan crafts – or forges, to use his own word – a new kind of poetry, capable of conducting its own investigation into the truth and implications of successive attempts to place humanity within the universe while always heeding Bondi's warning and resisting the lure of completeness. Michael Whitworth has pointed out both the encyclopaedic ambitions of epic in general and how modernist epic in particular has 'a richness that exceeds that of the encyclopaedia' as it requires multiple readings and presumably 'can never be conclusively interpreted' (2010, 197). With this in mind, Whitworth proposes that we examine modernist long poems 'for the ways that they attempt to negotiate with existing structures of thought, and for the ways in which they attempt to build new ways of seeing the world' (201). The questions Duncan asks through poetry in *Man* are the prompt for the answers given as science in *The Encyclopaedia of Ignorance*, which themselves take the form of new questions. That the second of these two books should have arisen directly from the first is a testament to the affinity between them and their shared endeavour. Both of them exceed conventional encyclopaedias because they both resist conclusive interpretation in their negotiations with existing structures of thought.

Like science itself, as it was understood by Duncan's eminent mentors and collaborators, *Man* succeeds by recognizing the inevitability of its own failure as a quest for final knowledge. At the end of *The Cantos*, Pound declares 'I am not a demigod,/I cannot make it cohere' (1994, 810). In one of his own closing cantos, Duncan recalls this admission and repeats it for himself:

'... Said, said, easily said. 'I boshed it'  
Ezra said, meaning his Cantos.  
I've muffed it too, meaning these.  
Never enough.  
The poet's only right: to attempt the impossible;  
his only privilege, to fail completely.' (1974, 94)

These lines are placed in inverted commas, as they are spoken by Duncan within the poem in a deliberately self-parodic voice. His failure may be complete but it is also triumphant. In *Man*, Duncan achieved both a reckoning of the scientific knowledge of his time and the transformation of poetry into a medium able to undertake its own, equally rigorous investigations. In so doing, he effectively invented a new kind of encyclopaedia, giving it two distinct and complementary forms: a modernist quest epic in *Man* and a yardstick for science itself in *The Encyclopaedia of Ignorance*. *Man* was far more than the plank between poetry and science that Duncan had hoped for. Instead, it became a stimulus for dozens of the leading scientists of his time to reflect publicly on the nature of science and to define their own fields not by what they knew but by the questions science as yet could not answer. In so doing, they took their lead from a poet rather than a scientist, who had himself learned from and paid tribute to many of the same scientists in his poem. The breach between poetry and science as two distinct cultures may have always been primarily a matter of perception, but in *Man* Duncan ensured that the two could contribute directly to one another in a way that few other poems have achieved.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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