

William Blake: *Lux, Lumen* and the Lights of Science

Transcript of a talk by **Alan Wall**, given to the Blake Society on Monday 9 December 2013. St James Piccadilly.

In this talk, Alan Wall tries to make sense of Blake's legendary aversion to science. He called it the tree of death, where art was the tree of life. Wall examines this belief in relation to the notions of light current in Blake's day, and wonders if Blake's notion of visionary light, a light illuminating from within, was simply incompatible with the notion of lumen which Newton's Optics had propounded. There had always been an alternative tradition – prior to Newton – that of lux, where the light did shine from within. That is true light for Blake, as is shown in both his writings and his paintings & graphic work. The visionary shone, illuminating the faces of those around him. Nature itself was little more than a realm of shadows; it was the Imagination which said 'Fiat lux'.

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Blake died in 1827, exactly one hundred years after Newton. In that final year he described the atom as 'A Thing that does not Exist' (To George Cumberland 12 April 1827, E783). Plenty of people, including a lot of scientists, would have agreed with him, though it would take more than another decade before the word 'scientist' would actually become usable, patented by William Whewell, who also gave us anode and cathode. As late as 1900 Ernst Mach still thought of atoms as a convenient fiction without any physical basis in nature.

But with Blake the matter is truly complex; it is not merely a question of establishing whether or not atoms exist. Blake railed against what he thought of as materialist science, or mechanical materialism. He loathed Francis Bacon, whose mode of analytic scientific enquiry renders him an intellectual anti-Christ as far as the poet is concerned. His feelings regarding Newton seem considerably more complex. Newton is finally redeemed in Blake's various mythic schemata, and Blake's portrait of him with a pair of compasses has a magnificence of its own,¹ even if the vision of the author of *Principia Mathematica* might be altogether too circumscribed, premised on the measurements of reason, not the delights of energy, and his crouching body represents a closure, not an opening. Blake

¹ The finest version of this Large Colour Print is in the Tate collection and can be viewed online: <http://www.tate.org.uk/art/artworks/blake-newton-n05058> (Accessed 15/12/2013)

has a horror of that intellectual model of the world he believes connects Newton with the ancient atomists: the notion that the cosmos is merely a vast arena in which lifeless atoms bounce around and collide, one with another. The outcome of such a 'nature' would appear to be fortuitous; any forms we have finally achieved can only be construed as accidental. Not teleology, but random formation. So how could one ever get from such a theatre of the statistically arbitrary and lifeless to our existing, intelligent, creative and creating forms? How evolve from that haphazard abecedary to this dynamic shaping spirit? The same question greatly troubled Blake's contemporary Coleridge. That Newton might conceive of the vastness of space as God's sensorium did not help either of them, nor could they have known anything of his hermetic obsessions, or his relentless apocalyptic calculations.

One wonders what Blake might have made of the quantum states, whose meaning was formulated precisely one hundred years after his death, at the Solvay Conference in 1927. These states now present themselves to us as the fundamental forms of nature. We know, as earlier atomists could not, that the atom has a structure, despite the etymology of the word, which indicates indivisibility. We also know that the wave patterns which particles display have certain definite forms; that would surely have pleased Blake, had he ever been cajoled in any way by materialist science. Classical physics posited a world of infinite attenuation, without gaps; and certainly without quantum leaps. Between the absolutes of space and time, all forms could be infinitesimally eroded and accrued; so there were no ultimate edges to states, but rather a statistic winnowing as one state attenuates into another. But nature, the quantum revolution taught us, is formally shaped in its very texture. Its warp and woof is fashioned from essential forms; these we call quantum states. Matter is either thus or thus. It cannot be endlessly attenuated; cannot be negotiated in some infinitely graded scale of material attrition. We have a ground state, and an excited state above it. Between the two forms is nothing, or something even less specific than that. As Wallace Stevens said of his Snowman, he sees the nothing that is not there, and the nothing that is.

In the perfect city of Golgonooza, as constructed by Los and Enitharmon, Blake tells us there is both Art and Science. And in *Jerusalem* he tells us: 'The Primeval State of Man, was Wisdom, Art, and Science' (*Jerusalem* 3, E145). So it is not science per se that is the enemy, it would seem, and yet Blake is explicit: 'Art is the Tree of Life. Science is the Tree of Death' (*Laocoön*, E274). What could have happened in the hundred years since Milton's writing that has made of science such an irrevocable enemy? It was no enemy for Milton, after all, who gleefully incorporated as much of the Galilean discoveries as he could into the opening of *Paradise Lost*; who went to visit Galileo while under house-arrest in Tuscany, and wrote about that visit with a certain pride in *Areopagitica*. Here we

have an exemplary case of art learning all that it can from science, grabbing the scientific swag, and turning it to booty in verse. One might almost hear Blake's ghost calling out to ask, and when does science ever learn from art, then? There is an answer there too. When Galileo looked through his newly-fashioned telescope in 1610, and saw the dark patches on the moon, he realised they must be protruberances; lunar mountains. He knew this because he had studied the techniques of chiaroscuro in the country that was then at the technical forefront of explorations regarding the representation of the effects of light and shade in two-dimensional images. He knew the spotty patches were the effect of an occluded light source. Thomas Hariot in England had seen exactly the same spotty patches the year before through his own telescope, but lacking Galileo's knowledge of chiaroscuro, he had been unable to make the same sense of them.

If science did not seem to conflict with the most mythic story ever told for Blake's greatest avatar Milton, it would appear to have threatened his own imagination with nothing short of death. Science was for him a radical diminution of vision, without which there could be no true perception at all. In its merely single vision, its one-dimensional analysis, measurement and comparison, it occludes the twofold, threefold and fourfold vision which together constitute Blake's mental world. It represented a cancellation of the essential intellectual force in its visionary multiplicity. In the intellectual Armageddon where Blake spent most of his life, as a faithful if frequently battered woodkern, trying to escape the massacre, science was the lethal devourer that wished to consume the prolific as a dragon might eat a princess.

A few contextual moments might be of assistance here. Blake was working for Joseph Johnson at St Paul's Churchyard at the same time that Joseph Priestley was being published by him. They might easily have met. Johnson was a sociable fellow, often inviting people to join him at his table. Priestley as a dissenting minister was involved in the same world of the conventicles that Blake seems to have frequented, at least for a while. Priestley was also fiercely pro-revolutionary, and his house and laboratory were duly burnt to the ground in Birmingham by a King and Country mob, as they celebrated their traditional verities and virtues. But apart from a reference to Dr Priestley in 'Auguries of Innocence', and the famously disparaging remarks about gas and gasbags in 'An Island in the Moon', Blake appears to have nothing further to say about his contemporary. And Priestley has nothing whatsoever to say about Blake. It has been speculated that Blake's Urizen could have gained his name from Priestley's habit in heated discussion of demanding 'Your reason? Your reason?' in which case we would be able to say with even more confidence that the one was not much enamoured of the other. From all that we do know of the pair of them, Blake and Priestley might have been expressly designed so as to miss the point of one another entirely. But it is at least a

curiosity worthy of remark that Priestley was discovering his laws of contraries in relation to electrical charge at the same moment that Blake was discovering his laws of progress through contrariety in relation to spiritual development. One expresses itself as the second inverse square law, and the other as *The Marriage of Heaven and Hell*. Contrariety, in and of itself, does not represent cancellation; it is a generator of energy. Contraries, as Blake tells us, are not negations.

Priestley belongs to that Unitarian moment when all of creation appears to be subject to minute scientific scrutiny; when every inch of the Lord's creation can be expected to yield up detailed information about the divine intention. Otherwise, observable nature would have to be seen to contradict the findings of true theology, and how could that ever be? That would make of the Almighty an incoherent Creator. So Priestley speculates in *Disquisitions Relating to Matter and Spirit*, published by Blake's sometime employer Joseph Johnson in 1777, that the soul could well be made of atoms of an exquisite fineness. It must obviously be made of atoms of some sort though, or the framework of scientific enquiry in which Priestley is situating his theology would entirely collapse. Man would be in danger of becoming soulless; a survival machine, however effective, with no prospect of redemption. And just to remind ourselves how strong some of these cross-currents at the time could be, Joseph Priestley, the man who isolated oxygen on these islands, and dialogued so impressively with Lavoisier, also believed that Jesus Christ would return within twenty years, to inaugurate the millennium. Jesus didn't return, and Lavoisier in Paris was decapitated by Madame Guillotine during the Terror. So, no more well-informed remarks from that particular head. Millenarians are always navigating towards disappointment.

The matter is perhaps best summed up in Blake's question at the start of *Europe* in 1794, the year of Lavoisier's death: 'Then tell me, what is the material world, and is it dead?' (*Europe* iii, E60) Dead material: how could true life ever come out of that? This was also the burden of Coleridge's question, when he writes in *Joan of Arc*: 'It has been asserted that Sir Isaac Newton's philosophy leads in its consequences to Atheism: perhaps not without reason. For if matter, by any powers or properties *given* to it, can produce the order of the visible world and even generate thought; why may it not have possessed such properties by inherent *right*? and where is the necessity of a God?' How can thought come out of lifeless matter, unless it is inspirited by the divine breath, that *pneuma* or *ruah* which the Book of Genesis tells us hovered over the waters? Nature can never provide Form; that must come from the divine spirit. It was this that led Blake to say of Wordsworth, whose greatness he acknowledged, that his devotedness to the material details of Nature made him in effect an atheist. And in a Notebook entry in the 1790s Coleridge speaks of Newton as a 'material theist'. The emphasis would seem clear, in

Coleridge as in Blake: there is a gap which philosophy, including natural philosophy, cannot bridge, between those inert material atoms, cold and lifeless as they are said to be, and the life of the spirit. One of Blake's most crucial words for the spirit's vital animation, along with imagination, is vision, and vision is an ambiguous word. Like the Proverbs of Hell in *The Marriage of Heaven and Hell*, it points both ways. Its obverse and reverse meanings could be seen as contradictory and dualistic; or they could be seen as complementary. Does the vision pour into us, or is it always in the process of pouring out?

Prior to Newton, there had been two competing views of how we see: we can refer to them as the *lux* and *lumen* optics. Lux and lumen are now terms used to define degrees of luminosity. But in that older tradition, which was long-lived, lux was thought to be the light that shines from us and delineates the objects out there to be perceived. This then was an optic of the inner light, and therefore also of the inner fire, one that was ignited by spirit, and is therefore the first cause of inspiration. Newton in his *Optics* firmly established that it is the lumen, and not the lux tradition, which appears to be verified by modern science. It is the light that comes from outside which we register with our ocular equipment. The light starts from elsewhere, then, not inside us. We are its recipients, not its generators. Otherwise, as Newton asks, how would we be able to see the image fading on the inside of the lid when we close our eyes?

Now what shines and what doesn't shine is very important to Blake. Where, he constantly asks, do you think this shining ultimately comes from, the light that provides the source of vision, that permits the delineation of its forms? Do you really believe it can arise out of those dead particles of matter, what Newton had called corpuscles? He asks his question most pressingly in these polemic verses:

Mock on Mock on Voltaire Rousseau
 Mock on Mock on tis all in vain -
 You throw the sand against the wind
 And the wind throws it back again

And every sand becomes a Gem
 Reflected in the beams divine
 Blown back they blind the mocking Eye
 But still in Israel's paths they shine.

The Atoms of Democritus

And Newton's Particles of light
 Are sands upon the Red sea shore
 Where Israel's tents do shine so bright.

(E478)

The opposition here is a vivid one: between particles of light, those cold or dead bits of stuff that appalled both Coleridge and Blake, and that both resisted as the posited rudimentary elements of this universe of ours, and the luminous gleam, the visionary brilliance that Blake sees perennially all around him. The grains of sand here become gems, and they do so because they are 'reflected in the beams divine'. In other words, Blake would appear to be recovering the lux tradition from its Newtonian depredations, simply by insisting that the light that shines from within actually comes initially and eternally from God – who for Blake is always within, since, for Blake, God existed inside each one of us; project him into some realm above and beyond and he becomes Old Nobodaddy, Milton's unloveable heavenly Father; the fictive Boss of a cosmic deistic machine. So Blake translates his antinomian inheritance, the abrogation of the Law so often preached in the conventicles he and his father seem to have once moved amongst, into an alternative science. Not one of passive reception, then; not one of Lockean perceptive blankness awaiting the world's stimuli to inscribe its material signature, but one of active visionary discovery and creation. God said *Fiat lux* not *Fiat lumen* and Blake is still seeing light generated before his eyes. In its ultimate form it is uncreated light, since he tells us elsewhere that what is merely created also dies. Priestley speculates whether the light that radiates from Jesus during the Transfiguration might be uncreated light, but for him this triggers another problem in its turn. How exactly would mortal vision manage to perceive uncreated light? Blake would have had no problem here: the true artist transcended mortal vision, to see instead the forms of the imagination. In twofold, threefold or – on blessed days – fourfold vision.

Blake translates this divine vision into his verses and his paintings. The science of Golgonooza is in effect an antinomian science. It had abrogated the law of passivity of the human receptor, and replaced it with the lux tradition of a radiant and radiating body, emitting energy, often in the form of light. We see it in Blake's image of Albion and Christ.² This hermetic tradition can be observed in any number of places: when the woman touches the hem of the garment of Jesus in the gospel account, she is healed, but he feels the power simultaneously going out of him. At this moment, Jesus is a form of divine radiation. In Rembrandt we frequently see the sacred figure emitting light. And

² Plate 76 of *Jerusalem* (Copy E, Yale Center for British Art), depicting Albion before Christ, can be viewed via the Blake Archive: <http://www.blakearchive.org/exist/blake/archive/object.xq?objectid=jerusalem.e.illbk.76&java=no> (Accessed: 15/12/2013)

when Einstein was monitored with electrodes attached to his head, he had been asked to think about relativity. The observers were expecting, presumably, a particular emission of energy through wave-form cerebretonics, and so had set up the equipment precisely to monitor such a radiant emission from the physicist's brain. The aureole around a saint's head is the commonest form of this tradition, along with any form of laying on of hands. The notion of a radiant and healing energy continues its eccentric course when the youthful Samuel Johnson is taken from Lichfield to London in order to be touched by Queen Anne. Scrofula, or the King's Evil, could be dispelled by contact with the anointed monarch. It didn't work, sadly. The Great Cham remained scrofulous to the day he died.

When the Berlin Wall fell, accompanied by the collapse of the Soviet Union, Francis Fukuyama announced the end of history. He has since acknowledged that he was perhaps underestimating Clio's longevity, but the notion of an apocalyptic time, an era of such radical change that everything is utterly transmuted by it, was there for Blake too. The French Revolution was seen as the end of the old history, the third and final age had now begun, and this was to be the age of the spirit. At last. The antinomian tradition here traces its genealogy back to Joachim of Fiore, as well as Swedenborg and Boehme. The first age of Moses was over; the second age of Christ had recently ended; the third age, the spiritual age, the end-time of the Holy Ghost, had now begun. Law had had its day; it was now no more than a dead husk of death-delivering prohibition. Love could at last replace it. If the prolific was now at last coming into its own, then the devourer might no longer consume the children of the light. That was the essence of all inherited antinomian beliefs for Blake. Time might at last have been re-united with eternity, after their long and acrimonious separation. Part of that belief is his hatred of what he calls 'Creeping Jesus', a phrase he marvellously invented; this false Messiah is addicted, he reckoned, to 'Yea and Nay'. Now we are told in the New Testament: 'Let your yes be yes and your no be no. All else comes from the Evil One.' But Blake insists that his Jesus, not the Jesus of history, that chronicle of the man named Yeshua from Nazareth, but rather the translucent redeemer of apocalyptic times, includes both yes and no, not as separated realms of existence, but as the obverse and reverse of the coin of genuine existence; not dualism then, but complementarity. Here obverse and reverse are no longer 'opposites', but different aspects of the same indivisible reality; contraries not negations. This aspectual inclusiveness characterises the redemptive thought of the Everlasting Gospel, which states explicitly that with the death of Christ and the harrowing of hell, the reign of sin is now ended for ever. It is no longer Antigone who dies in this new drama; but Creon. And good riddance too.

Blake has at least one thing in common with modern physics: for both the word energy is a sacred term. Energy, *energeia* in its Greek form, meaning work, including all the infinite possibilities of doing and making, is the source of many of the radical discoveries of modern physics, as well as many of its continuing mysteries.³ And Blake is of course explicit: 'Energy is Eternal Delight.' Energy is for Blake the centrifugal force ceaselessly pressing outwards, to escape constraint, limit and inhibition. It is the prolific, radiating out of itself its own ceaseless exuberant creation. Reason operates as a centripetal force, a force of limit and circumscription, and although this is not simply an opposition of positive and negative, the reasoning force when deprived of its dialectic with energy becomes for Blake the Spectre, the dead and malign reason that hangs like a mephitic vapour over the Land of Ulro. A line of circumscription can still be a celebration of form, a liminal frontier between the prolific and the devourer, as Blake's own fluent line so often is in his visual work, but it can also be the container of mere measurement, the geometric vector that circumnavigates a vacancy, indeed the outer filament of a gas-bag. Your reason, sir, your reason.

Blake's Newton as he portrays him is luminous, but he is entirely intent on measurement, and his vision has been constricted to a downward gaze. Like Nebuchadnezzar,⁴ he is being pulled down by the gravitational pull of dead materiality, where Blake's more glorious figures always move upwards and outwards. They are presented to us as the source of their own energy – God is only ever alive through his vital being inside the living creatures of imagination – and it is the light of themselves that illuminates their vivid landscapes. Their bodies are luminous with their spirits; indistinguishable from them. They radiate energy continuously. Their flesh is the irradiated form of their souls.

Blake presses himself here to an extremity, which threatens him with incoherence. He insists that nature has nothing to do with his art; that his images all come from Imagination, not from any exterior act of copying; that the visionary daughters have nothing to do with the daughters of memory. And here we have no alternative but to stop taking the terms of his vision on trust for a moment, for here we encounter a problem, which links up fatally with the dilemma of the utter negation of materialist science in his thought. How could we recognise Blake's figures, his trees, his streams, if his art has no commerce whatsoever, as he insists, with nature? How could we recognise his drawing of Catherine putting on her stockings? He would reply that those who can

³ Its first use to signify mechanical or electrical energy is in fact recorded during Blake's lifetime, in 1807, and obviously relates directly to the kind of work Priestley had been doing. The previous definition of energy, that of Johnson's great Dictionary of 1755, was: 'Power not exerted in action.' In the terminology of physics today, this would mean that energy was potential, not kinetic.

⁴ The Large Colour Print *Nebuchadnezzar* is in the Tate collection and can be viewed online: <https://www.tate.org.uk/art/artworks/blake-nebuchadnezzar-n05059> (Accessed 15/12/13)

paint with true vision, not the single variety which constitutes Newton's sleep, create forms which can be recognised immediately by those who can *see* with true vision. He might also argue, in semi-Platonic manner, that the spiritual form is what is embodied, though in degraded incarnations, in the natural body. Nature is itself neither more nor less than a copy of those purer forms. He has another ace up his sleeve too, when he writes to Flaxman on 21st September 1800: 'In my Brain are studies & Chambers filled with books & pictures of old, which I wrote & painted in ages of Eternity before my mortal life...I look back into the regions of Reminiscence & behold our ancient days before this Earth appear'd in its vegetated mortality to my mortal vegetated Eyes' (E710). Memory does play its part, then, but in the form of extra-mundane reminiscence. If the visionary forms were first perceived in a prenatal existence, then they obviously have no business being checked for accuracy by post-natal measurers.

But let us momentarily risk empiricism and single vision so as to choose a specific instance and test the matter. This test, we had best admit immediately, would have struck Blake himself as utterly repellent.

The specific image for examination is 'The Ghost of a Flea'.⁵ The creation of this image has been documented for us. Varley, an early spiritualist, recounts how Blake perceived the flea's ghost in the room. His visitor requested him to limn it, so the artist called for his materials and began to draw. Soon before us appears a remarkable image. This is evidently what Blake, with extraordinary vividness, saw appearing before him. No one else could see anything at all. But a number of people, including Kenneth Clark, have pointed out, with patient shrewdness, that we can in fact provide an iconography of this image. It did not come solely out of the Imagination, but out of Blake's hoard of remembered forms, many of which had been provided by others during the course of his life. There would appear to be a reference to nature, after all. An image from Robert Hooke's *Micrographia* had become rooted so firmly in Blake's mind that he no longer realises it is even there to be called upon. And another image, a somewhat coarse reproduction of one of the howling devils from the Sistine Chapel ceiling, also seems to have found a roosting place in Blake's inner menagerie of images, his iconographic mental catacomb. His visual imagination has so entirely internalised these items that they can now reappear at will, and Blake's noted 'eidetic imagery' appears adept at externalising previously internalised material, whether iconographic, Biblical or literary. Blake's imagination has previously stored all it will need from nature, it seems, so he no longer needs to make any direct observations of it, though he must have at least registered some natural forms as he made his way about the world, or he would have

⁵ *The Ghost of the Flea* is in the collection of the Tate and can be viewed online: <http://www.tate.org.uk/art/artworks/blake-the-ghost-of-a-flea-n05889> (Accessed: 15/12/2013)

continually collided with them. The image of the flea (or its ghost) had arrived through a microscope, through Hooke's eye, not Blake's. Hard to think of Blake spending much time staring through a microscope. He would probably have agreed with Pope:

Why has not man a microscopic eye?
For this plain reason: Man is not a fly.

In the extremity of his protest against that materialist science he sees as void of life, multiple vision or interest, Blake is pushed to a position of vigorous polemic opposition. Like Swedenborg, he insists he can journey in the realm of the spirit and find all the forms he needs there. And with that word 'forms' we do seem finally to have summoned what Yeats called Plato's ghost. In speaking of Plato, in a letter to Butts of 6th July 1803, Blake is prompted to one of his rare uses of the word allegory which is not entirely abusive. He says of Plato's notion of poetry that it is not unlike his own: 'Allegory address'd to the Intellectual powers, while it is altogether hidden from the Corporeal Understanding' (E730). However, Blake soon exhibits his usual genius for ambivalence, in his comments on Berkeley: 'Plato did not bring Life & Immortality to Light. Jesus only did thi'; and even more firmly: 'What Jesus came to Remove was the Heathen or Platonic Philosophy, which blinds the Eye of Imagination, The Real Man' (E664).

But whatever caveats he might have expressed in other respects, Blake seems never to have balked at Plato's ideal version of form. He tells us in *Milton*: 'Whatever can be Created can be Annihilated: Forms cannot: the Oak is cut down by the Ax, the Lamb falls by the Knife, but their Forms Eternal Exist Forever' (*Milton* 32[35]:36, E132). Once again he seems to be in agreement with modern physics here, though he undoubtedly arrived at the agreement by a notably circuitous route. The forms of matter might be smashed to bits in particle annihilation, modern physics tells us, but the amount of matter and energy must remain constant. And the quantum states are always there, glowing away even in our ultimate entropic sump. Blake believed the forms outlived their temporary hosts; and so did Niels Bohr. The *nihil* at the heart of the word annihilation is deceptive; it is not a rendering to nothingness we are observing, but a species of metamorphosis. 'Every force evolves a form.' Thus Mother Ann Lee, the founder of the Shakers. Blake would have agreed with his contemporary as, in a radically different register, would Darwin years later. Form was never inexact for Blake; only inadequate and inexact representation could make it so. No *sfumato* for this artist. The form was the precise expression of the force.

It is a world of passive perception that is Blake's sworn enemy. Dead matter measured and circumscribed by a reason which has detached itself from the perpetual delight which is energy, which has submitted to the life-hating commandments of Old Nobodaddy, which has etherialised itself into the grey abomination of the Spectre, and which now wanders in perpetual lament through the drear ruins of the Land of Ulro. Nature which is not animated by the visionary fire is for Blake a form of death; this he comes to call simply Nature, in an intellectual manoeuvre which we have to admit can be ultimately confusing. This quirk of Blake's separates altogether too absolutely the exterior from the interior, the daughters of memory from the daughters of inspiration. And it is this region of lifeless form that he adumbrates when he declares that Art is the Tree of Life and Science the Tree of Death. He is not prepared to be a mere receptor of stimuli and data, as the lumen tradition seems to suggest that the perceiving subject is. Instead he says that the light does indeed shine within us all. God did, after all, say, *Fiat lux*; not *Fiat lumen*. He was uttering the light that, according to Blake, was nothing less than the ceaseless radiation of his own visionary identity, though to those enlightened by this last age of the spirit, he will appear in human form. Logos is inseparable from lux. And that's why Israel's tents do shine so bright. The particles of luminosity enlighten the visionary. Their blowback in a world of dull materialism blinds the mockers who imagine they are in fact the true seers. Instead they are fact-men; the intellectual functionaries of Caesar, the clerks notating the stately actions of the Beast.

Niels Bohr used to start his lectures by saying that every sentence was to be taken, not as a statement, but as a question. Just as Blake's visionary forms in his etchings and paintings tend to open out, and rise up, so one of Blake's most characteristic linguistic forms is the question, which is a trope of syntactic opening, not closure. How often we find Blake asking, rather than answering: 'And did those feet in ancient time...' (*Milton* 1, E95); 'What immortal hand or eye | Could frame thy fearful symmetry...' ('The Tyger' E24); 'Little Lamb, who made thee...' ('The Lamb' E8).

The light couldn't just be particles, Blake insisted. And it turns out that he was right. Just over ten years after Blake wrote *The Marriage of Heaven and Hell*, Thomas Young conducted his famous experiment at the Royal Institution, which established that light propagates itself as a wave, creating patterns of diffraction and interference. His demonstration elicited a certain amount of derision at the time, particularly from an anonymous review by Brougham in the *Edinburgh Review*, because if true it would have appeared to disparage the findings and conclusions of the mighty Newton, and his corpuscular theory of light. God, according to the Bible, had said, *Fiat lux*; let there be light. But if Alexander Pope is to be believed, then he subsequently changed his mind, or at least modified it. In 1727, the year of Newton's death, Pope wrote:

Nature and Nature's laws lay hid in Night;
 God said, *Let Newton Be!* and all was light.

It would appear that Newton, born on Christmas Day in 1642 without an earthly father, since he was a posthumous child, represented some kind of intellectual redeemer, a veritable messiah in the world of natural philosophy. Blake of course was having none of this. And the masters of memorials in Westminster Abbey seemed a little dubious too: Pope's couplet was never incorporated into their memorial stones.

It took Einstein's paper on the photo-electric effect in 1905, followed by twenty years of laborious intellectual toil, before it could finally be established that light was both wave and particle; that it wasn't made simply of particles, but nor could it be described entirely as a wave. Waves are after all forms of perception; and all forms in nature are perceived through pattern recognition. Their shapes continue even after all the individual particles temporarily constituting them have departed. The matter may be created, and is therefore, according to Blake, perishable, but the form can be seen to be eternal.

Only through contraries comes true progression, Blake told us. And Bohr said something complementary. The opposite of a small truth, he said, is merely its contradiction; but the opposite of a great truth might well be another great truth. Contrariety is not negation. Light is both wave and particle, even though those two modes of transmission had previously appeared to be inherently contradictory. Blake said in *Milton*: '...there is a place where Contraries are equally true' (30[33]:1, E129). We need to be careful too whenever we use the word 'opposition'. It is a tricky word, and its modern usage, as Empson reminds us in *Seven Types of Ambiguity*, is a relatively recent coinage. In its origin it was straightforward and exact enough: one planet on the far side of the sun is in opposition to ourselves at an angle of 180 degrees. But how loose the term can sometimes now appear. In any book of antonyms, black will be given as the opposite of white. But the absence of all light is hardly the opposite of the combination of all colours in white light. The opposite of white light could more aptly be considered to be coloured light, which can be refracted, while remaining itself, while white light can only be refracted by rainbowing into separate colours, and therefore vanishes as white light at the precise moment of its own refraction. And the opposite of any colour should be another colour, not the entire absence of colour. Whatever might be the opposite of a man, it is surely not a woman. Macbeth understands this all too clearly when he says, 'I dare do all that may become a man. Who dares do more is none.' And Lady Macbeth is not the opposite of Macbeth, but his lethal complement in dark ambition. Blake would

presumably have added that the opposition between an angel and a devil would disappear should they ever embrace; they represent hemispheres of a single mental world. The energy would begin to flow between the bright spiritual anode and the dark spiritual cathode, should they ever reach out and join hands. The antinomian circuit of energy would then complete itself.

C. S. Lewis says in *The Great Divorce* that he does not understand what Blake means by the 'marriage of heaven and hell', and he suspects that Blake didn't either. I think Blake did, actually. In 1790 we know Blake acquired Charles Wesley's *Hymns for the Nation*, in 1782. His dated autograph appears in the copy he acquired. So he would be contemplating the contents of this book around the same time that he starts work on *The Marriage of Heaven and Hell*. Wesley thinks the American rebels are a bad lot, and he is in no doubt whose side the Almighty is on in this particular battle. America is Sodom, and the Congress is described as 'like Lucifer in its rage for power and its blind fury of insurrection'. Blake, we might recall, reckoned it was the King of England who had sent over to America his 'punishing Demons'. And so once again, we can hear Blake thinking, not for the first time we populate Hell with our enemies, just as Dante had done in the *Inferno*. And each pantheon of villains in the form of hell needs another hemisphere to sustain it, in the form of virtuous heroes aligned in heaven. It all depends on which side Albion is on in this conflict; which is to say, it all depends on who and what you reckon Albion is. Wesley's Albion was certainly not Blake's. But what would happen if one hemisphere stopped seeing the other as a Manichean negation of itself, and embraced it instead? We know that if you bring matter into the presence of anti-matter the energy generated is so huge that, could such generation continue to be sustained, we would have enough light and heat to overturn the Second Law of Thermodynamics. Entropy would give way to a visionary universe. Energy would indeed be eternal delight. The prolific and the devourer would be happily married in perpetuity.

The true spirit of Blake's opposition to dead forms, and intellectual passivity, his contrariness whenever confronted with what he believed to be the forms of the Spectre, might be captured most compellingly in David Jones's beautiful poem, 'The Tutelar of the Place', where the Ram is the figure of geometric lifelessness, calculation and oppression; the global obliteration of all locality and differentiation. This is Blake's Beast updated, wielding state power only to achieve the greatest possible uniformity. Set over against it, in an iconographic opposition Blake would have understood only too well, is the Lamb, and the womb that brings forth that Lamb:

In the December of our culture ward somewhere the secret seed,

under the mountain, under and between, between the grids of
the Ram's survey when he squares the world-circle...

When the technicians manipulate the dead limbs of our culture as though it yet had life,
have mercy on us. Open unto us, let us enter a second time within your stola-folds in
those days – ventricle and refuge both, *hendref* for world winter, asylum from world-
storm. Womb of the Lamb the spoiler of the Ram.