

Genesis, Geology and Gardens

The Burnet Controversy and the development of the Picturesque

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If only the Geologists would let me alone, I could do very well, but those dreadful Hammers! I hear the clink of them at the end of every cadence of the Bible verses."

John Ruskin, *Letter to Henry Acland*, (1851)

Introduction

In the eighteenth century, a revolution in garden aesthetics took place. After centuries of formality, when gardeners were at pains to differentiate their pleasure grounds from the natural world, it became fashionable to imitate and draw inspiration from nature. At first this showed itself through a few serpentine paths and unclipped shrubs, then by grand idealised visions of Arcadia, and culminating in picturesque landscapes inspired by nature in its roughest unfashioned form – before the Victorian ‘counter-reformation’ led to revivalism and stylistic diversity. Today, in the age of the garden makeover, a television designer must come up with a revolutionary idea every week. This makes it harder for us to appreciate the momentous nature of this transformation in taste, which of course affected not just garden design but painting, poetry, novel-writing and other arts as well.

Christopher Hussey famously saw the Picturesque as a stage in the development of the romantic aesthetic, affecting all of the arts:

The picturesque phase through which each art passed, roughly between 1730 and 1830, was in each case a prelude to romanticism. It occurred at the point when an art shifted its appeal from the reason to the imagination. An art that addresses the reason, even though it does so through the eye, does not stress visual qualities. The reason wants to *know*, not to experience sensations. The romantic movement was an awakening of sensation, and, among the other sensations, that of sight required exercising. Thus the picturesque interregnum between classic and romantic art was necessary in order to enable the imagination to form the habit of feeling through the eyes.¹

Why should art shift its appeal “from the reason to the imagination”? And why should this change occur in eighteenth-century England? A tide of romanticism eventually swept through Europe, yet it seems to be in this country that the picturesque phase flowered first and most fully. Certainly this is true for gardening; the landscape garden is seen as quintessentially English throughout the continent – ‘le jardin anglais’, ‘der englische Garten’, ‘il giardino inglese’.

The transformation was slow and the causes were complex. As Hunt and Willis observe:

Two aspects of this history will deserve special attention: first, the deep roots and long gestation of the ‘English’ style contrasted with the exceptionally short period during which it flourished. Second, the evidence reveals that ... [garden design] is determined by intellectual, social, economic, political and artistic forces, which in their turn are mirrored in gardens.²

Much has been written about the origins of this change and its causes. The importance of the ‘Grand Tour’, of the landscape paintings of Claude of Lorraine, Nicholas Poussin and Salvator Rosa, and of the social, economic and political forces shaping the eighteenth century have all been examined by scholars³.

Important as these factors are, there is still something missing from the account. The change from the classical to the romantic is so fundamental that it must have been shaped, not just by new experiences, but also by new beliefs. During the latter part of the seventeenth century, deep-seated changes occurred in three great belief-systems: religion, philosophy and science. These changes prepared the soil, so to speak, for artistic, economic and social 'seeds' which germinated over the next hundred years to produce a new idea of nature, and consequently a new idea of beauty.

The purpose of this article is twofold: firstly to recapitulate these fundamental changes in our idea of nature and to consider their role in the change from a classical to a romantic sensibility, and secondly to illustrate the complex interplay of ideas through the controversy surrounding Thomas Burnet's Sacred Theory of the Earth⁴, a book that tried to bring together the biblical story of Genesis and the new science of geology, and to look for the roots of the picturesque aesthetic in this debate.

Once, wild nature was felt to be something to be feared. It was ugly and dangerous; an uncontrollable force standing in opposition to man's reason and God's order; the embodiment of the Devil's destructive powers. In this belief system, the garden is a safe haven where man's power can be exercised and dangerous nature excluded. But during the seventeenth century, particularly (but not exclusively) in England, the belief grew that nature was subject to intelligible laws which could be comprehended by mankind. Nature became tamed, or at least tameable, and thus less feared, and as fear of nature declined, it became something to be revered. This can clearly be seen in attitudes towards mountains and wild scenery. Although the physical dangers of mountain travel were not diminished, artists and writers began to praise the glories of the mountains, as part of God's creation, rather than to bemoan their existence. Nature was welcomed into gardens rather than excluded, and natural form began to replace formal geometry.

Hussey hints at the connection when he writes: "An appreciation of scenery is a very late acquisition in the development of the western mind. The reason for the delay can be found in the teaching of Christianity⁵". Although he fails to elaborate, it is tempting to see this as a simple matter of Science displacing Religion; as the triumph of the Moderns over the Ancients, of Reason over Superstition, or of Geology over Genesis, but the reality is perhaps more complex and more interesting. Seventeenth century natural philosophers, almost without exception, believed that the laws of nature were the laws of God, and that science supported religion rather than undermining it. Many of the protagonists, including Burnet, held a mixture of conflicting views which would not be resolved for another hundred years.

This article relies much more on literary imagery than on landscape paintings for a number of reasons. Firstly, published books are much more readily available and accessible than works of art; there is no art gallery equivalent of the inter-library loan. Secondly, the analysis of paintings is a specialised field which is perhaps best avoided by the non-expert. A detailed study of landscape paintings from this perspective would be a most interesting task.

The Rubbish of the Earth: Seventeenth Century Images of Mountain Scenery

Until the seventeenth century, the view of nature commonly held in Britain and most of Europe largely depended upon a mixture of religious and classical influences which had been skilfully reconciled by St. Augustine. The English Reformation had done little to change this.

No one illustrates this outlook better than John Donne, sometimes called the last of the Mediævals. As John Hayward writes in his introduction to Donne's work⁶: "Donne was the last great disciple of scholasticism, of those dark esoteric beliefs that the 'new philosophy,' as he described the scientific renaissance of the early seventeenth century, was to 'call in doubt.' When Donne died the heritage of the Middle Ages passed to no heir".

Donne's work is imbued with a Neoplatonic belief in the analogies between macrocosm, geocosm and microcosm. In 1611 he wrote a poem entitled An Anatomie of the World, which drew parallels between the decay of the body after death and the corruption of the world after the Fall. Discussing mountains, using Tenerife (sometimes thought the highest mountain on Earth) as an example, he writes:

But keeps the earth her round proportion still?
Doth not a Tenarif, or higher Hill
Rise so high like a Rocke, that one might thinke
The floating Moone would shipwrack there, and sinke? ...

Are these but warts, and pock-holes in the face
Of th' earth? Thinke so: but yet confesse, in this
The worlds proportion disfigured is.⁷

Donne condemned the 'modern' heliocentric Copernican world view in Ignatius his Conclave⁸. He also wrote the poem Twicknam Park, celebrating the garden of his friend Lady Harington which contained a large circular emblematic Daedalus or maze, laid out in seven concentric circles which are thought to have symbolised the Ptolemaic or earth-centred universe. In the old Ptolemaic system, a sharp distinction is drawn between the perfection of the heavens, with their crystalline spheres, and the corruption of the earth, which has been decaying since the Fall. In contrast the Copernican system seemed to blur the distinction between heaven and earth.

Donne is not alone; similar sentiments are common in the early seventeenth century. Here is Andrew Marvell:

Here learn ye Mountains more unjust,
Which do to abrupter greatness thrust,
That do with your hook-shoulder'd height
The Earth deform and Heaven fright,
For whose excrescence ill design'd,
Nature must a new Center find.⁹

Similar imagery is found in topographical poetry of the period. Perhaps the most telling examples relate to Chatsworth, contrasting the house and garden with its setting in the Derbyshire 'Peak' district. In 1622, Michael Drayton wrote Poly-Olbion, an attempt to describe the whole of the British landscape in poetry. Here is his description of the peak then known as the 'Devil's Arse':

To th' unwearied Muse the Peake appears the while,
A withered Beldam long, with bleared watrish eyes ...

Yee darke and hollow Caves, the pourtraitures of Hell,
Where Fogs and misty Damps continually doe dwell.¹⁰

Charles Cotton wrote his Wonders of the Peak in 1679, but although he was a local man who elsewhere wrote with strong feeling about the countryside, he has no more sympathy for this mountainous place:

Where Nature only suffers in Disgrace,
A Country so deformed, the Traveller
Would swear that those parts Nature's Pudents were:
Like Warts and Wens, Hills on the one side dwell
To all but Natives Inaccessible;
Th' other a blue scrofulus Scum defiles
Flowing from th' Earth's imposthumated Boyles.¹¹

He finishes by contrasting the jewel of Chatsworth with the ugliness of the surrounding countryside. Who would not conclude, he wrote:

That this is Paradise, which seated stands
In midst of desarts and of barren Sands?
So bright a Diamond would look if set
In a vile socket of ignoble Jet,
And such a face the new-born Nature took
When out of Chaos by the Fiat strook.¹²

Much the same is found in the writings of travellers recording their impressions of crossing the Alps. John Evelyn had a keen interest in nature; he was the author of Sylva, as well as a devoted gardener and plant collector (he and Pepys commissioned William Dampier to collect specimens for them on one of the earliest voyages to Australia). His attitude to garden taste is transitional; in his letter to Sir Thomas Browne, he anticipates the new garden styles: "our drift is a noble, princely and universall Elysium ... How Caves, Grotts, Mounts, and irregular ornaments of Gardens do contribute to contemplative and philosophical Enthusiasms"¹³, yet according to Hussey: "the scenery that most appealed to him was the rectangular and fruitful. This he habitually compared to 'paradise'"¹⁴. In 1646, Evelyn crossed the Alps and described his first sight of the mountains:

which now rise as it were suddainly, after some hundreds of miles of the most even Country in the World, and where there is hardly a stone to be found, as if nature had here swept up the rubbish of the Earth in the Alps, to forme and cleare the Plaines of Lombardy.¹⁵

It is revealing to contrast Evelyn with the dramatist and critic John Dennis, who made a similar crossing in 1688, just over forty years later. Dennis wrote:

The unusual heighth in which we found ourselves, the impending Rock that hung over us, the dreadful Depth of the Precipice, and the Torrent that roar'd at the bottom, gave us such a view as was altogether amazing. ... The sense of all this produc'd different motions in me, viz., a delightful Horror, a terrible Joy, and at the same time, that I was infinitely pleas'd, I trembled.¹⁶

Although Dennis clearly has mixed feelings, we see the beginnings of a new sense of awe and wonder at the majesty of nature, and a belief that wilderness can be uplifting rather than depressing. He is one of the first writers to express such feelings.

Henry and Margaret Ogden have found parallels in the landscape paintings of the period¹⁷. They describe four main moods in Ideal (as opposed to Topographical) Landscapes of the second half of the seventeenth century. Two of these moods are also common in the first half of the century: "ruin pieces" on themes from classical literature (e.g. Claude), and "well-being" showing prospering activity (e.g. Dutch landscapes). The other two later moods, both associated with mountain scenery, are:

“drama” (e.g. Rosa), and “horror”. To illustrate the latter, they discuss a mountain landscape by Adrian van Dienst¹⁸.

It is the sort of Alpine scene which led Thomas Burnet to evolve his theory of the “broken” world, and which thrilled John Dennis with horror and delight¹⁹.

The mood of “horror” associated with mountain scenery was not altogether new at the end of the seventeenth century, but apparently it came into landscape painting there for the first time. ... [It] stems from ideas about mountain scenery which became current in the controversy concerning Thomas Burnet’s *Telluris Theoria Sacra* (London 1681). The attitudes towards mountains in this controversy were highly self-conscious and explicit, and the mood of the painting has the same qualities. ... There can be little doubt of the historical importance of the van Dienst landscape. It holds in landscape painting a place analogous to that of the prose description by Dennis in literature²⁰.

In earlier periods we find more negative associations; with danger, temptation and wickedness. The Ogdens identify another “mood” which is common before 1650 but rare in the second half of the century: landscapes with saints in the wilderness. In these paintings, the landscape is clearly the evil menace contrasting with and threatening the holy man.

Similar descriptions of mountains and wild nature are found right back to the Middle Ages. Perhaps the most famous exception is Petrarch’s *Ascent of Mount Ventoux*²¹, describing his climb in 1335, which has a key place in Renaissance literature. But Petrarch was as much inspired by the thought of emulating Philip of Macedon’s example as by a desire to see the view, and he sits down on the route to contemplate his difficulties in finding his way as a metaphor on the journey of life, as Bunyan later did. The view from the top gives rise to a longing for Italy and his friend, and led to a meditation on St. Augustine’s *Confessions*, rather than a reverie on the view. Moreover Petrarch’s work found no echo, and the Italian Renaissance garden preferred to display princely power by emphasising Man’s control over nature.

From the middle ages to the late seventeenth century, the most common expression of feeling towards raw nature in general, and rugged mountain scenery in particular, was a sense of disgust or fear. Irregularity was seen as an imperfection in nature, morbid and pathological, morally as well as physically corrupt. In this dualistic world-view, the works of man stand opposed to nature. Regularity is associated with virtue, and untamed nature with sin. The garden and the wilderness²² are the two opposite poles of this dualism. The implication is that the Earth, which now is afflicted with decay and disease, was once a pure and undeformed Paradise.

The Garden of Eden

The belief in a lost Paradise predates the Christian era; the Biblical account of mankind’s expulsion from the Garden of Eden into the wilderness is echoed in other traditions. The Zoroastrians of ancient Persia held similar beliefs; humans were expelled from the celestial garden of the supreme deity Ahuramazda when they sided with his rebellious torch-bearer Ahriman, the homologue of the Judaeo-Christian Lucifer. Zoroastrianism is a dualistic religion; the universe is divided in two.

Ahuramazda’s garden – heaven – is set against our world, ruled by Ahriman and filled with death, pain and suffering. The word ‘paradise’ is derived from the Persian word for garden – *parai-daeza*, meaning ‘within the wall’; from this root also comes Greek *paradeizos*, Latin *paradiso*, Hebrew *pardes* and Arabic *ferdous*.

In the light of this, it is significant that the Persian gardens of the Achaemenid dynasty – some of the earliest gardens that we know about – were highly regular.

Primary sources on pre-Islamic Persian gardens are sparse, but it is generally agreed that they were walled enclosures, often raised or terraced, containing water – usually as four ‘rivers’ or rills fed from a central reservoir – together with pavilions, shade trees, fruits, scented flowers, birds and animals, and that their most obvious feature was geometrical regularity. The French historian Jacques Benoist-Méchin believed that their garden-making was a symbolic attempt to recreate Paradise on Earth: “*Le jour où les Paradis terrestres et le Paradis céleste seraient redevenus identiques, le Bien aurait triomphé du Mal et les effets de la Chute seraient définitivement effacés. Jardins ... étaient des instruments de salut pour l'ensemble du genre humain*”²³ (“On the day when the Earthly Paradises and the Heavenly Paradise should become identical once more, Good would have triumphed over Evil, and the effects of the Fall would have finally been removed. Gardens ... were the means of salvation for the whole human race.”). Great importance was laid on the development of gardens for this reason. There are inscribed tablets from the King to the Satraps (provincial governors) reminding them of their primary duty to care for their *paridaeza*²⁴. The Greek General Lysander reported that Cyrus The Great worked in his garden himself, and Cyrus ordered that young men should be instructed in the two arts of weaponry and gardening. The salvation of Mankind was work fit for the highest in the land.

The Achaemenid gardens were enormously influential. The Greeks sang their praise, and after the Arab conquest, their influence spread to Mughal India, Sicily and Spain, and from there to monastic and other Mediæval gardens throughout Europe. The influence may have been more than just stylistic. It has been suggested that the Biblical account of the four rivers of Eden might have come from the Persian Gardens of Babylon, which would have been seen by the Jews in exile²⁵. This implies that the regularity of gardens from the Middle Ages to the eighteenth century may be due to something more than simple practicality: it may have expressed a belief that imposing a regular design on nature would create an echo of a lost paradise.

The Influence of Neoplatonism on Mediæval thought

The early Christian Church found itself competing with many other religions and beliefs. Survival often demanded assimilation of its rivals, as the incorporation of many pagan festivals into the Christian calendar shows. For a period before the birth of Christ, Alexandria was the most important intellectual centre, and it retained much of its importance even after its incorporation into the Roman Empire. In the third century, it contained a wide mix of sects, philosophies and religions. As well as Christianity, there were the old cults of Rome and Egypt, together with others from the Middle East, including Persia. In addition there were Greek sects like the Stoics and the Epicureans. Both of these schools believed in a form of determinism; the Epicureans thought that everything was controlled by the action of atoms, whereas the Stoics believed in the controlling influence of astrology. Both were therefore antagonistic to Christianity, in which the doctrine of free will was indispensable.

One of the most important of these early sects was Neoplatonism. As its name suggests, Neoplatonism incorporates the Platonic dualism of Form and Matter, yet it also includes important elements from the Stoics. Plato’s ‘Idea’ is pure form, and in Neoplatonism it is elevated to the status of a deity at the pinnacle of a complex hierarchy of being. One aspect of this philosophy is relevant here; the relationship between form and matter. There exists a perfect idea or form of everything – of a circle, or of a dog, for example – and this form struggles to direct the material world to generate real circles, or real dogs, all of which are different from the general form,

and thus imperfect. In the same way, the soul of man struggles to control the body, but sometimes fails. There is, therefore, an implied dualism; a perfect ideal domain in permanent conflict with the imperfect material world. Form without matter is perfect; matter without form is evil, and only when the soul is free from the body can it unite with the divine Idea. In this respect there is a similarity with the doctrines of Zoroaster, and it is possible that Manichaeism, an offshoot of Zoroastrianism, played a part in its development²⁶.

The dualism implicit in Neoplatonism is reflected in the division between heaven, with its perfect spheres for the motions of the planets, and the earth, corruptible and irregular. The heaven/earth split mirrored the soul/body divide, and from this follows one of its most important doctrines, the Doctrine of Correspondence. The Neoplatonists, like the Stoics, held that the universe or 'macrocosm' was a mirror of Man the 'microcosm'. In some later writings, parallels are also drawn with the earth or 'geocosm'. Thus the four elements of the world – earth, air, fire and water – correspond to the four humours of the body, and the four seasons of the year are counterparts of the four ages of man. Astrologically, the macrocosm could influence the behaviour of the microcosm, but in contrast to the beliefs of the Stoics, this was not a total control; crucially, Neoplatonism was non-deterministic. This made it acceptable to the Christian Church as it allowed for free will.

St. Augustine (354 – 430) was mainly responsible for incorporating Neoplatonism into Christianity. Brought up as a Christian, he struggled to reconcile his religious faith with his classical culture, in particular with regard to the problem of evil – if God is perfect and all-powerful, why does He allow evil to exist? He converted to Manichaeism, attracted by its dualism which saw the world as a struggle between equally-matched Good and Evil, rather than as the creation of omnipotent Good, but then later turned to Neoplatonism. He was finally re-converted to Christianity when he found that he could make the two compatible, and thus reconcile faith with reason. His teachings form the foundation of Christian philosophy which later developed into the Scholasticism which flourished throughout the Middle Ages, and which included the astrological theories of the microcosm and macrocosm. There is a curious paradox about Scholasticism, which stems from Neoplatonism. In addition to emphasising the Scriptures it laid great stress on reason, and yet it stifled observation-based research. This is because it emphasised reasoning by analogy – the Doctrine of Correspondence – not just as a starting point but as the final yardstick of proof. One example of this principle is the Doctrine of Signatures, which held that the medicinal properties of a herb could be deduced from its appearance. Thus *Hepatica*, with its kidney-shaped leaves, must be good for the kidneys; there was no idea that these effects could be tested empirically. Reasoning by analogy appeared fruitful but is ultimately sterile, because although it acts as a never-failing source of ideas, keeping scholars busy and productive, it cannot be submitted to any test of observation.

Scholastic philosophy may seem a long way removed from eighteenth century gardens, but it was largely responsible for shaping the Mediæval idea of Nature.

Genesis

Everyone is interested in their origins, and the early Church Fathers spent much time considering the first chapter of Genesis and discussing its meaning. The original paradisiacal earth, which God had created, must – according to Mediæval reason – have been the true epitome of beauty. What was it like?

The conventional view was that when God created the dry land, He must have made the continents and mountains as well as the seas. As Milton wrote:

God said,
 "Be gathered now, ye waters under Heaven,
 Into one place, and let dry land appear!"
 Immediately the mountains huge appear.²⁷

But there was another view, widely held by the early Church Fathers and by other scholars, including (in some, though not all of his writings) the Venerable Bede, that the original earth was a perfectly smooth sphere, or perhaps not quite spherical, but egg-shaped. Indeed, the tradition of the Mundane Egg predates Christianity; it is found in Persian and Egyptian myths, Ovid ascribes it to Roman mythology and it appears to have a long history in Jewish legends and in the works of rabbinical commentators²⁸. In spite of popular notions, Mediæval scholars hardly ever espoused a flat earth, but the notion of a smooth globe, which has now become wrinkled and disfigured, is much more common. To Donne's question "But keeps the earth her round proportion still?", the expected answer is evidently "no, but once upon a time she did". The paradisiacal earth is now spoiled.

When were the mountains formed, according to Genesis? In the beginning, "the earth was without form, and void" – and therefore without any mountains. Were they made on the third day, when "the waters were gathered together into one place" and the dry land appeared?²⁹ Or did they appear later, as a result of the Fall? The question is linked to an early dispute in the Church over the meaning of Genesis 3: 17: "cursed is the ground [or earth] for thy sake; in sorrow shalt thou eat of it all the days of thy life". The argument stemmed from translation difficulties: should the passage be understood to mean that the soil was cursed – i.e. made infertile and stony – as a result of Adam's sin, or that the planet earth was cursed – which could mean that it was disfigured. The question was serious enough to have occupied the Council of Trent in the mid-sixteenth century; it was part of the battle-ground of the counter-reformation.

A related problem was that of the Flood. Did the Deluge cover the whole globe? If so, where did all the water come from? What effect did the Deluge have upon the surface of the earth? Were the mountains already there, or were they formed as a result of the Flood? Once again, there is a tradition that mountains were formed as a result of God's reprisals against mankind. Augustine sought a compromise on the question; he suggested that there were a few small mountains before the Flood, but that the water's action made them larger, more rugged and uneven. Bede's writings are inconsistent, but many commentators assumed that he believed that the earth was smooth before the deluge. Other Christian thinkers supported this position; in particular Peter Abelard, who used the Doctrine of Correspondence to deduce the structure of the Mundane Egg from the four elements: the shell corresponded to earth (land), the membrane to air (atmosphere), the white to water (the seas – originally under the surface of the land), and the yolk to fire (the core of the earth).

The differences of opinion persisted after the Reformation, with Calvin believing that mountains were created on the third day, while Luther maintained that the Garden of Eden destroyed and mountains created at the Deluge, although the earth's corruption had started at the Fall³⁰.

The belief that nature was deformed and cursed as a result of man's sin were still alive in the seventeenth century, as Drayton's *Poly-Olbion* shows. This passage tells of water nymphs taunting mountain nymphs:

... Upon the former world; as t'were by scars to showe
That still she must remain disfigur'd with the blow:
And by th' infectious slime that doomfull Deluge left,
Nature herself hath since of puritie been reft;
And by the seeds corrupt, the life of mortall man
Was shortned. With these plagues yee Mountains first began.³¹

Thus the Flood gave rise to the scars of the mountains, to the decay of Nature, and to the mortality of Man.

The New Philosophy

Scholasticism began to be challenged by Natural Philosophy in the Renaissance, but its deeply engrained outlook lingered until it was finally displaced by the Scientific Revolution in the seventeenth century. Galileo, Descartes and Bacon are sometimes taken as the three most prominent prophets of the New Philosophy, as it was commonly known at the time.

Galileo Galilei made two vital contributions. He combined measurement and calculation to solve problems in mechanics and to derive natural laws, and he used observation to make discoveries about the heavens. In so doing, he helped establish the scientific method that we take for granted today. The Doctrine of Correspondence is banished, since reasoning by analogy is not enough; physical science must be based on observation, and its conclusions, developed mathematically, must agree with observation. Galileo also threw doubt upon the doctrine of the unchanging perfection of the heavens with his observation of mountains on the moon, sunspots and Jupiter's moons³².

René Descartes did little observational science, but he introduced new techniques of mathematical analysis by applying algebraic methods to geometry, and he believed that maths should have undisputed mastery in the study of nature. He worked out from physical principles a new theory of the formation of the earth, deterministically shaped by gravitational forces and vortexes, following its initial creation by God. His theories may have lacked observational confirmation, but they were important because he asserted the right of natural philosophy to examine the mechanism of Creation. The mechanical universe, evolving from natural laws rather than divine intervention, was born.

By comparison, Francis Bacon's contribution seems flimsy at first. He made no discoveries of note, he lacked an understanding of the crucial role of mathematics in science and he proposed a scientific method for collecting and 'processing' facts which simply doesn't work. His physician, William Harvey (the discoverer of the circulation of the blood) commented that "He writes philosophy like a Lord Chancellor". Yet Bacon's influence was powerful because he held that powerful position, and his vision of science was a politician's vision. He saw it as a useful tool in the service of the state, and realised that to achieve its potential it must be a social rather than an individual activity. He foresaw the rise of today's 'big science' – team-based and application-oriented science. He helped to create a congenial climate of opinion in England in which natural philosophy could flourish.

It was also significant that the English Reformation was rooted in pragmatism and politics as much as in doctrine and dogma. Although Bacon warned that the Advancement of Learning would meet with opposition from the Church, Anglicanism was much less wedded to Scholasticism than was the Catholic Church. It held that the Bible was a source of moral, rather than scientific, truth, and after the Dissolution of the Monasteries it had a far weaker hold on English scholars and thinkers.

These factors made post-restoration England more receptive to it than continental Europe. To us, Galileo now appears as a lonely genius rather than the founder of a scientific tradition, while Descartes' work helped to establish a tendency for rationalist and absolutist, rather than empirical, thinking in France. In England, by contrast, the physical sciences flourished, throwing up men like Newton, Boyle, Hooke and Halley, and leading to the formation of the Royal Society and the empirical philosophy of John Locke³³.

It must be stressed that these men did not believe that their work was incompatible with their religion. Both Newton and Boyle, for example, were men of strong religious conviction. Robert Boyle endowed the Boyle Lectures after his death to combat heresies. Isaac Newton studied the apocalyptic prophecies of the Bible (there was great interest in Millenarianism – theories about the coming of the end of the world – at this time), and it was said that he considered his interpretation of the book of Daniel more important than his Principia Mathematica.

Geology was not one of the first sciences to flourish in England, as the biblical story of Genesis was not so easy to challenge as Scholasticism, especially in the countries of the Reformation. Perhaps the greatest geological challenge to Genesis was the existence of fossils, especially marine fossils found on land, which had been known since classical times. Greek philosophers such as Anaximenes and Heraclitus had believed that the only reality was change or flux, and that the seas and land could exchange places, but this was not acceptable to Christianity. Since God separated the seas and the land on the third day, but only made aquatic life on the fifth, how could marine organisms be found on land? The orthodox view was that fossils were not really animal remains at all, but had somehow 'grown' in the rocks. The other school of thought held that the upheavals at the time of the Deluge had deposited these fossils on dry land, and even on mountain-tops.

Geology was studied more on the continent, where the Doctrine of Correspondence suggested hypotheses linking the world with the human body – geocosm and microcosm. There were many theories which compared the flow of rivers with the blood, and rocks and mountains with the bones of the body; running through these was the idea that the world might also have a soul, and even that the earth, like man, had been cursed by God³⁴. It wasn't until 1691 that Edmund Halley presented a paper to the Royal Society on the origin of rivers, which, although still imbued with Neoplatonic imagery, offered a physical explanation based on evaporation and condensation³⁵.

But before Halley's paper was written, Thomas Burnet had published a physico-theology which was intended to solve the problems of the origin of mountains and of the waters of the deluge and to reconcile Genesis and the new philosophy.

Burnet and the Sacred Theory

Thomas Burnet³⁶ was born sometime around 1635. He went to Cambridge, where he was tutored by John Tillotson, a latitudinarian interested in the new sciences who

later became Archbishop of Canterbury. Burnet became a fellow of Christ's College under Henry More, one of the Cambridge Platonists, and he became deeply influenced by Platonism, and also by the works of Descartes.

Burnet was enthusiastic about the new philosophy, and his aim was to use it to solve the mysteries of the mountains and the waters posed by Genesis. His interest in these questions had been stirred when he undertook the Grand Tour in 1671 in the company of the Earl of Wiltshire, where he found himself unprepared for – and horrified by – what he saw:

To see on every Hand of him a Multitude of vast Bodies thrown together in Confusion, as those Mountains are; Rocks standing naked around him; and the hollow Valleys gaping under him ... it would not be easy to him to persuade himself that he was still upon the same Earth; but if he did, he would be convinc'd, at least, that there are some Regions of it strangely rude, and ruin-like, and very different from what he had ever thought of before.³⁷

These Mountains are plac'd in no Order one with another, that can either respect Use or Beauty ... There is nothing in Nature more shapeless and ill-figur'd than an old Rock or Mountain ... if you look upon an Heap of them together, or a mountainous Country, they are the greatest examples of Confusion that we know in Nature.³⁸

Burnet may have seen himself on the side of the New Philosophy, but he was very much wedded to the Old Aesthetics. This is made even clearer in his views on the stars in the night sky:

They lie carelessly scatter'd, as if they had been sown in the Heaven, like seeds, by handfuls; and not by a skilful Hand neither. What a beautiful Hemisphere they would have made, if they had been plac'd in Rank and Order; if they had been all dispos'd into regular Figures, and the little ones set with due Regard to the greater.³⁹

It is hard to imagine anything farther removed from the Romantic taste than the desire to tidy up and organise the stars!

His Alpine experience set Burnet wondering how the Almighty could be guilty of such a lapse in taste, and he felt compelled to seek a neat explanation. The new theory would depend on scientific principles and be backed up by scriptural references and by the authority of the ancients.

Burnet published his original Telluris Theoria Sacra in two volumes in 1681⁴⁰, dedicated to Wiltshire, and the book was well received. Charles II encouraged him to publish an English version, The Sacred Theory of the Earth, three years later⁴¹. After the Glorious Revolution, Burnet brought out a Latin edition with two additional new volumes⁴², followed by an English translation of the four books (dedicated to the new Queen Mary) together with Burnet's reactions to criticisms⁴³. Such was the interest generated that there were numerous editions and reprints up to the twentieth century⁴⁴.

In Book I, he brings many arguments from antiquity and authority, including the ancient Persians, to suggest that the antediluvian earth must have been smooth and regular. He proposed that the earth had originally coalesced out of the primeval chaos under the influence of gravity, with the densest matter settling out first, forming a series of concentric layers. In the centre was a fiery core, surrounded by a thick rocky layer. Above this was a layer of water, and floating on the water was a scum formed from the finest dust particles which had taken longest to settle out – rather like shaking up some soil in a jar of water and letting it settle: stones and mud on the bottom, then water with dust and humus floating on top. The surface layer congealed and solidified, he argued, to form a perfectly smooth crust, poised precariously over

the watery abyss, and enveloped in the lightest part; the air. The crust or shell was so luxuriant and fertile as to give rise to the spontaneous generation of life. The Earth's axis was perpendicular, not tilted, and so there were no seasons; thus there was perfect regularity of space and time. The earth, however, was not a perfect sphere. Following Descartes, Burnet proposed that it would be elongated towards the poles as a result of the vortex (actually the reverse is true; the earth is flattened by 'centrifugal force'). Burnet had in fact re-created the Mundane Egg. He had even incorporated Abelard's four elements, but his was created using physical principles rather than analogy.

In this smooth Earth, were the first scenes of the World, and the first Generations of Mankind; it had the Beauty of Youth and blooming Nature, fresh and fruitful, and not a Wrinkle, Scar or Fracture in all its Body; no rocks nor Mountains, no hollow Caves, nor gaping Channels, but even and uniform all over. And the Smoothness of the Earth made the Face of the Heavens so too; the air was calm and serene; none of those tumultuary Motions and Conflicts of Vapours, which the Mountains and Winds cause in ours: Tis suited to a Golden Age, and to the first Innocency of Nature.⁴⁵

Here is the belief that Paradise – and hence the Garden – must be perfectly regular.

In Book II, Burnet came to his central problems – the formation of mountains and the source of the Flood. He was always concerned to work from reason and avoid divine intervention as far as possible. He demonstrated that forty days of rain – even an inch and a half per day – could not produce enough water to flood the earth if it were mountainous. He resolved “not to turn to miracles, where man and nature are sufficient”. He had to explain how the Deluge came to pass by ‘natural’ means, and how the Prelapsarian earth was destroyed when man's wickedness became too great. “At a time appointed by Providence”, as he put it, the constant heat of the sun, unmoderated by any change of season, caused the crust to dry up and crack, and the water beneath to ‘rarefy’ or expand. The earth's ‘shell’ broke up and fell into the watery abyss, sending the water up into the air to fall as rain. The water drained away into underground caverns, and the broken pieces, left behind, formed the mountains. When he had crossed the Alps he had witnessed the ruins of a broken world.

The two later books dealt with the Earth's future; the great conflagration, springing from by the central fire (destined to begin at Rome!) in which the earth is to be cleansed and reformed and mankind judged, and the final dissolution, one thousand years later, when the earth will turn into a sun or star. In these two books, Burnet was extending his theories to cover the contemporary interest in Millennialism.

Ancients and Moderns - Criticisms of The Sacred Theory

The initial reactions to Burnet's work were positive. It was taken very seriously, and praised by many, including Evelyn, Halley, Steele and Addison. On the Continent, Burnet was considered the equal of Newton and Descartes by men as eminent as Diderot (though Voltaire satirized his ideas). In this country it stimulated a large volume of correspondence. Later readers included Wordsworth and Coleridge.

Sir William Temple was greatly pleased by much of it, but took exception to what he called Burnet's ‘Panegyric of Modern Learning and Knowledge in comparison of the Ancient’. This prompted him to write his Essay upon the Ancient and Modern Learning⁴⁶. Temple is sometimes quoted as a precursor to the ‘Modern’ natural landscape style due to his praise of the Chinese taste for picturesque irregularity which he called “Sharawadgi” in Upon The Gardens of Epicurus⁴⁷, but he did not advocate its use in this country and a contemporary painting of his garden at Moor

Park near Farnham shows a formal walled garden, albeit with some serpentine walks in a wilderness nearby. The Essay reveals him as an unreformed Ancient. Temple's views were attacked by the 'Moderns', particularly Richard Bentley, and Jonathan Swift came to his defence with his great satire of Ancients against Moderns, The Battle of The Books⁴⁸.

Newton made some criticisms regarding the shape of the world, pointing out that it should be flattened at the poles, not egg-shaped as Descartes thought. He proposed an alternative hypothesis for the earth's formation, but said that "of our present seas, rocks, mountains etc., I think you have given the most plausible account"⁴⁹. Halley also proposed an alternative mechanism for the Creation, Deluge, and Conflagration by means of comets, as did William Whiston, Newton's protégé and successor at Cambridge. Swift lampooned their theories in Part III of Gulliver's Travels, where the citizens of the flying island of Laputa are in constant fear of being struck by a comet. Yet Burnet himself escaped Swift's satirical pen.

Burnet's future seemed assured; he was made Master of Charterhouse in 1685, and appointed Chaplain to King William III after the Revolution of 1689, and it seemed likely that he would succeed Tillotson as Archbishop of Canterbury. Then it all went wrong. Burnet's Mundane Egg turned pear-shaped.

In 1690, a Suffolk clergyman, the Rev. Erasmus Warren launched the first effective attack on Burnet. Warren chose not to criticise Burnet on theological and scriptural grounds, nor on scientific ones, although he was a something of a theologian and quite well-read in science. His objection was that all the irregularities of nature were beautiful in themselves, not distortions or imperfections.

For as the beauty of the Sun, lies in brightness and glory; and the beauty of the Sky, in clearness and serenity; so the beauty of the Earth, which is a different thing, does and needs must lie in very different instances, namely, in Seas and Lakes, and Islands and Continents; in Flats and Prominences; and Plains and Protuberances, and Hollownesses and Convexities; in smooth and spacious Levels in some places, and Hills and Mountainous Roughnesses in others.⁵⁰

He specially praises "that roughness, brokenness, and multiform confusion in the surface of the Earth". Significantly, he also argues from landscape paintings: "Were a man to contrive a Prospect for himself, we may be sure he would not have it all of a piece, or alike throughout." It is clear that variety and roughness or intricacy are the essential elements of the quality that Warren admires so much, and which we can legitimately describe as picturesque. We are used to finding comparisons between irregular nature and landscape paintings after William Kent, but Warren was writing thirty years before Burlington brought Kent back from Italy.

Burnet was stung to write a reply in the 1690 edition, in which he defended his belief in the intrinsic beauty of regularity and disparaged Warren's love of roughness, saying that the same criteria of beauty might – how absurd! – "be apply'd to the ruins of an old Bridge, fallen into the Water." As indeed they might – within a century, English landowners would be building ruined bridges and buildings in their gardens.

For Warren, all of God's works are beautiful, and there is no curse on nature. He makes no opposition between the original perfection of the earth and its subsequent ruin; between the beauty of the Idea and the evil that lurks in the untamed material world. The old Mediæval dualism has been swept away by a new unified world; all of it is accessible to human reason and all of it is beautiful since it expresses God's purpose. And so the new aesthetics began to be born at the same moment as the new philosophy and the new religion established themselves.

Burnet's misfortune was that, although he was enthusiastically Modern with regards to science and theology, he clung to the Ancient conception of beauty, just at the moment when attitudes were changing. Warren did not create this new idea of Nature, but he was among the first to articulate views which were gaining currency. It is significant that he was planning his book at almost exactly the same moment that John Dennis expressed his feelings about the mountains:

For the Alps are works which [nature] seems to have design'd, and executed too in fury. Yet she moves us less, when she studies to please us more. I am delighted, 'tis true at the prospect of Hills and Valleys, of flow'ry Meads, and murmuring Streams, yet it is a delight that is consistent with Reason, a delight that creates or improves Meditation. But transporting Pleasures follow'd the sight of the Alpes, and what unusual Transports think you were those, that were mingled with horrors, and sometimes almost with despair?⁵¹

If Dennis gives us the first celebration of the sublime, Warren's praise of the variety and irregularity of natural landscape is the first appreciation of the picturesque.

Other attacks on Burnet now followed. In 1691, John Ray, 'the Father of English Botany', argued for the usefulness of mountains, and this was echoed the following year by Richard Bentley in the first of the Boyle Lectures. A mathematician, John Keill, pointed out many scientific errors in 1698, forcing Burnet to give up much of his reliance on support from Biblical passages, and he started to gain a reputation as a Deist. As he brought out new editions with appendices refuting his critics, most importantly in 1726, the gap between his science and his scripture widened, and his chances of preferment evaporated.

The Aftermath: Nature Poetry and Ruins

The influence of Burnet affair can be seen in the growth of interest in Mountain Poetry, in geology, and in theories of landscape aesthetics.

In the early eighteenth century, James Thompson's Seasons appeared⁵². Thompson made use of an important Continental work of geology, Varenius's Geographia Generalis of 1650, which contains references to the theory of a smooth antediluvian world. John Dyer's Grongar Hill⁵³ followed in the same vein. The fashion for geology can also be seen in a surge of interest in grottos and caves, both in gardens and in poetry, and in the vogue for visiting mines. Earthquakes, tempests and volcanoes also became important elements of nature poetry.

At the same time a taste for majestic ruins was developing, stimulated by Burnet's description of the ruins of the earth. Ruins became fashionable in literature, exemplified by Dyer's Ruins of Rome, John Cunningham's Elegy on a Pile of Ruins and The Ruined Abbey by William Shenstone, the creator of The Leasowes. Ruins also started to appear in gardens. William Kent's Eyecatcher on the skyline at Rousham was built around 1740, and a few years later Sanderson Miller built a ruined castle on Edge Hill in Warwickshire.

The controversy rumbled on through the eighteenth century, with more writers and poets criticising Burnet's idea of beauty. One of the most substantial examples is the epic poem Edge-Hill, written by Richard Jago, a Warwickshire clergyman and a close friend of Shenstone. The poem was published in 1767 but was probably written earlier. After praising Miller for the picturesque scenes which he had created along Edge Hill, including his castle, he proceeded to write a lengthy rejection of Burnet's

theory, all in verse, before praising many of the surrounding gardens and estates including the Leasowes.

From the Sublime to the Picturesque: Theories of Landscape Aesthetics

The eighteenth century also saw much serious thinking about landscape theories, and most of these – with the exception of Burke's – were based on a three-fold division which may be summarised as 'beautiful', 'sublime' and 'picturesque'. Two distinctions are important: regularity/smoothness contrasted to variety/roughness (picturesque) and small scale contrasted to vast (sublime).

Edmund Burke's Philosophical Inquiry into the Origins of Our Ideas of the Sublime and the Beautiful⁵⁴ is well known, but his ideas owe a debt to Joseph Addison. In a series of articles in the *Spectator* in 1712 (No^s 411 – 420) entitled Pleasures of the Imagination, Addison proposed his three aesthetic categories: the great, the uncommon (stressing variety and diversity), and the beautiful. Burke's originality lies in his ascribing reasons for our appreciation of beauty and sublimity; he believed that they are produced by our urges for procreation and self-preservation. Picturesque variety is harder to link to a basic urge, which may be why Burke limited himself to two categories.

But Addison may not have been the originator of these categories; they mirror those used by Burnet in his Answer to the Exceptions⁵⁵, written as a refutation of Warren's arguments, and Marjorie Hope Nicolson considers that Addison was influenced by Burnet⁵⁶. Addison and Burnet differ in one important respect, however: Burnet did not consider all three aesthetic categories to be equally pleasing or desirable. Addison's 'Beauty' is smooth, regular and small, corresponding to Burnet's 'regularity'. His 'Greatness' is not just "bulk of any single object, but the largeness of a whole view" including "huge heaps of mountains, high rocks and precipices" – sublimity. Addison's third category, 'Uncommon', (which corresponds to picturesque, and which Burke ignored), is characterised by variety and novelty, and Addison wrote that it was the result of curiosity, which "bestows charm on a monster", as he put it. Burnet however regarded 'the uncommon' as the opposite of 'the beautiful'. Intending to refute Warren's notion that irregularity and roughness is attractive, he wrote that "A man may be pleas'd in looking upon a Monster, will you conclude therefore that he takes it for a Beauty?"⁵⁷ It seems likely that the two monsters are related!

Addison was certainly very much aware of the new sciences, and of the Burnet controversy. Astronomy and microscopy – the infinitely great and infinitely small – both caught his imagination, and he also made reference to geology. He praised Descartes in his Oration in Praise of the New Philosophy, and even wrote an Ode to Burnet. His writings in favour of the 'Modern' taste in gardening are well known.

There is something more bold and masterly in the rough careless strokes of nature, than in the nice touches and embellishments of art. The beauties of the most stately garden or palace lie in a narrow compass, the imagination immediately runs them over, and requires something else to gratify her; but in the wide fields of nature, the sight wanders up and down without confinement, and is fed with an infinite variety of images, without any stint or number.

Alexander Pope is also well known for his influence on the new taste in gardens through his *Guardian* essay of 1713. His imagination was also stirred by the new philosophy. After attending one of William Whiston's lectures, he wrote:

This minute, perhaps, I am above the stars, with a thousand systems around me, looking forward into the vast abyss of eternity, and losing my whole comprehension in the boundless spaces of the extended creation, in dialogues with Whiston and the astronomers.⁵⁸

Yet Pope illustrates the difficulties of categorising anyone as Ancient or Modern, as he satirised John Dennis as Sir Tremendous Longinus in the play Three Hours after Marriage⁵⁹.

William Shenstone developed his influential *ferme ornée* at The Leasowes. He was a poet and man of letters, and his views are recorded in his Unconnected Thoughts on Gardening⁶⁰. They are not particularly original, but they do contain a reference to 'picturesque', in the sense of picture-like: "Gardening may be divided into three species – kitchen-gardening – parterre-gardening – and landskip, or picturesque-gardening: which latter ... consists in pleasing the imagination by scenes of grandeur, beauty, or variety"⁶¹. His ideas clearly owe a debt to Addison (and therefore maybe to Burnet), but by substituting variety for novelty, he is coming back to Warren's ideas, and also anticipating Uvedale Price.

Shenstone does address one issue of philosophical interest in an original way. How far should a gardener go with the Natural style? In the early part of the century, 'natural' meant not clipping your trees, and creating winding walks as well as straight ones. As it progressed, the improver's aim increasingly became the creation an ideal natural landscape. But if you believe that nature is perfect, what is the rôle of the gardener? The logical conclusion is that you should cease to garden, and let nature take over. Shenstone tries to answer this question; if we could only see the whole picture, he thinks, we wouldn't need to garden; but our view is limited, and this gives us some license to meddle.

ART ... is allowed to regulate, somewhat clandestinely, upon the following account – Man is not capable of comprehending the universe at one survey. Had he faculties equal to this, he might well be censured for any minute regulations of his own. ... we are placed in the corner of a sphere; endowed neither with organs, nor allowed a station, proper to give us an universal view; or to exhibit to us the variety, the orderly proportions, and dispositions of the system. We perceive many breaks and blemishes ... which, in the whole would appear either imperceptible, or beautiful. And we might as rationally expect a snail to be satisfied with the beauty of one of our parterres ... or an ant to prefer our buildings to her own ... as that man should be satisfied, without a single thought that he can improve the spot that falls to his share⁶².

What a scrupulous improver, to feel so guilty about tampering with nature that he had to come up with a justification for gardening! Yet it illustrates perfectly the view that nature is perfect – not long ago, before the Fall; not just in the mind of God; but right here and now.

Shenstone exemplifies many of the themes coming from the Tellurist debate. At The Leasowes, he made use of 'borrowed views' of the Wrekin and the Welsh mountains⁶³: "Prospects should take in the blue distant hills; but never so remotely that they be not distinguishable from clouds"⁶⁴. He places great emphasis on variety, especially combined with antiquity, and in this he goes beyond Addison and Burke, and anticipates the aesthetics of William Gilpin, Richard Payne Knight and Price.

"Ruined structures appear to derive their power of pleasing, from the irregularity of surface, which is VARIETY; and the latitude they afford the imagination"⁶⁵

"A LARGE branching, aged oak, is perhaps the most venerable of all inanimate objects."⁶⁶

Shenstone the poet, though no artist, made sketches of The Leasowes. Like Kent and Pope (and like Warren), he thought of landscape in terms of paintings, and variety was essential for the composition.

LANDSKIP should contain variety enough to form a picture upon canvas; and this is no bad test, as I think the landskip painter is the gardiner's best designer.⁶⁷

Perhaps the greatest theoretician of the Picturesque was Uvedale Price. In An Essay on the Picturesque⁶⁸, he interposes 'picturesque' between Burke's 'beautiful' and 'sublime', the three categories corresponding to Addison's (and Burnet's) 'uncommon', 'beautiful' and 'great', and to Shenstone's 'variety', 'beauty' and 'grandeur'.

PICTURESQUENESS, therefore, appears to hold a station between beauty and sublimity ... It is ... perfectly distinct from either; and first, with respect to beauty, ... they are founded on very opposite qualities; the one on smoothness, the other on roughness.⁶⁹

It is equally distinct from the sublime ... greatness of dimension is a powerful cause of the sublime; the picturesque has no connection with dimension of any kind ... Uniformity (which is so great an enemy of the picturesque) is not only compatible with the sublime, but often the cause of it. The picturesque requires greater variety.⁷⁰

Price ascribes the quality of picturesqueness to:

two of the most fruitful sources of human pleasure; the first, ... variety, whose power is independent of beauty, but without which even beauty itself soon ceases to please; the other intricacy, a quality which though distinct from variety, is so connected and blended with it, that the one can hardly exist without the other.⁷¹

Once again, the picturesque is identified with variety and roughness, those qualities which Warren found so attractive in contrast to Burnet's uniformity.

The same is found in the nineteenth century. John Ruskin also characterised the picturesque in terms of signs of age and decay (like Shenstone) in The Seven Lamps of Architecture⁷², and by irregular variety, or "ruggedness" in the fourth volume of Modern Painters: "the merely outward delightfulness [of picturesque subjects] -- that which makes them pleasant in painting, or, in the literal sense, picturesque -- is their actual variety of colour and form".⁷³ Ruskin's reaction to geology is quoted at the head of this article.

Conclusions

The new aesthetics saw the irregularity and variety of nature as an integral part of God's work, not as the consequence of Man's sin, when the old dualism, in which the regularity and harmony of reason threatened by cursed nature, gives way to a new view of nature as part of the unity of Creation. A crucial stage of this transition occurred at the end of the seventeenth century, and to an important extent was precipitated by the debate about Burnet's Sacred Theory. We find the first signs of sympathy for the picturesque and the sublime shown in the writings of Erasmus Warren, and the roots of the landscape theories of the eighteenth century can be found in Burnet's attempts to justify his Platonic aesthetics against Warren's attacks.

Writers and theorists like Pope and Addison were advocating the new style of gardening some time before practical gardeners were actually creating it, and the gardens of the early eighteenth century rarely show many traces of the revolutionary ideas of the intellectuals. It seems that on this occasion it took time for practice to catch up with theory, and this may be because the change was initiated by developments in philosophy, religion and science.

At first sight, it seems strange that Hussey should conclude that the picturesque "occurred at the point when an art shifted its appeal from the reason to the

imagination", since the scientific revolution is usually seen as elevating reason above superstition. But the Mediæval Doctrine of Correspondence stressed reasoning by analogy, and the power of the Church ensured that this form of reason was applied to all spheres of activity within its closed world. Art was the servant of religion, and subject to its rule. The scientific revolution broke the tyranny of Scholastic reason, and it was the empiricism of English science, rather than the rationalism of the French, which proved the most fruitful in opening up this closed world. The enthusiasm of men like Addison and Pope for the new sciences shows how the imagination could celebrate the vastness of a universe in which Infinite God is reflected in Infinite Space.

In every revolution, something is lost as well as gained. In less than a century, almost all the old formal gardens of England were swept away in a tide of improvement, and a thousand Edens were lost for ever. It is perhaps ironic that Francis Bacon, who laid the foundations for England's scientific revolution, was once tenant of Twickenham Park, with its old Ptolemaic symbolism. In his poem Twicknam Park, Donne wrote prophetically:

And that this place may thoroughly be thought
True Paradise, I have the serpent brought.

Perhaps it was Bacon, not Donne, who brought the Serpent into the Garden.

Our idea of nature, shaped by our belief systems of philosophy, religion and science, is clearly central to our notion of what a garden should be. As nature changed from something feared to something revered, gardens changed from excluding nature to drawing it in. The concept of nature continued to evolve. Later generations saw her as bountiful, a resource to be exploited, and the eclectic and confident character of Victorian gardens reflects this idea. More recently, we have become aware of the fragility of nature, and this is reflected in new ecological styles of garden design. Gardens will always reflect our philosophy and relationship with nature.

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- ¹ Hussey, Christopher (1967) The Picturesque: Studies in a Point of View (London 1967), p. 4.
- ² John Dixon Hunt & Peter Willis, The Genius of the Place (Cambridge, Mass. 1997), p. 2.
- ³ See, for example, Elizabeth Manwaring, Italian Landscape in Eighteenth Century England (London 1965), Christopher Hussey, The Picturesque, Tom Williamson, Polite Landscapes (Stroud, Glos. 1995), as well as various works by John Dixon Hunt.
- ⁴ Burnet's book first appeared as Telluris Theoria Sacra in two volumes (London 1681), and was translated as The Sacred Theory of the Earth (London 1684). Most of the quotations are from the 1965 edition.
- ⁵ Hussey, The Picturesque, p. 5.
- ⁶ John Donne, Complete Poetry and Selected Prose, ed. John Hayward (London 1967), p. xiii.
- ⁷ Donne, 'An Anatomie of the World' in Complete Poetry and Selected Prose, p 207. The poem was written on the first anniversary of the death of the fifteen year-old daughter of his patron, Sir Robert Durie.
- ⁸ Donne, Complete Poetry and Selected Prose, pp. 357-409.
- ⁹ Andrew Marvell, 'Upon the Hill and Grove at Bill-borow', in Poems and Letters, ed. H. M. Margoliouth (Oxford 1927), p. 56.
- ¹⁰ Michael Drayton, Poly-Olbion (London 1889), II, 123 *et seq.*
- ¹¹ Charles Cotton, The Wonders of the Peak (London 1681), p. 1.
- ¹² Cotton, The Wonders of the Peak, p. 73.
- ¹³ John Evelyn, 'Letter to Sir Thomas Browne' (1657) in Hunt and Willis The Genius of the Place, p. 57.
- ¹⁴ Hussey, The Picturesque, p. 84.
- ¹⁵ John Evelyn, Diary, ed. E. S. de Beer (Oxford 1955)
- ¹⁶ John Dennis, Critical Works, ed. E. N. Hooker (Baltimore 1939 - 1943) p. 380.
- ¹⁷ H. V. S. Ogden and M. S. Ogden, English Taste in Landscape in the Seventeenth Century, (Ann Arbor; the University of Michigan Press, 1955), pp. 49 ff.
- ¹⁸ The painting is kept at Windsor Castle.
- ¹⁹ Ogden and Ogden, English Taste in Landscape in the Seventeenth Century, p 140.
- ²⁰ Ogden and Ogden, English Taste in Landscape in the Seventeenth Century, p 146.
- ²¹ Text in James Harvey Robinson, ed. and trans. Petrarch: The First Modern Scholar and Man of Letters (New York 1898)
- ²² In referring to a wilderness, I mean a true natural wilderness, as distinct from the artificial Wildernesses which were common features of late seventeenth and early eighteenth century gardens; these invariably had regular elements.
- ²³ Jacques Benoist-Méchin, L'Homme et ses Jardins – Les Métamorphoses du Paradis Terrestre, (Paris 1975), p. 106.
- ²⁴ Benoist-Méchin, L'Homme et ses Jardins, p. 107.
- ²⁵ Ronald King, The Quest for Paradise (London 1979), p. 21.
- ²⁶ Manichaeism and Neoplatonism both played a part in the development of other dualistic European religions or 'heresies' such as Gnosticism and Catharism.
- ²⁷ John Milton Paradise Lost (1608-1674), VII, 282-287.
- ²⁸ Marjorie Hope Nicolson, Mountain Gloom and Mountain Glory, (New York 1959), p. 81.
- ²⁹ Genesis 1: 1, 9.

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- ³⁰ Nicolson, Mountain Gloom and Mountain Glory, pp 96-104.
- ³¹ Michael Drayton, Poly-Olbion (London 1889), IX, 117-122.
- ³² The discovery that there were heavenly bodies orbiting Jupiter showed conclusively that the Earth could not be the sole centre of planetary orbits, and therefore of the universe.
- ³³ Locke, John, An Essay Concerning Human Understanding, (London 1690)
- ³⁴ See Marjorie Hope Nicolson, The Breaking of the Circle (New York 1960), especially pp. 117 ff, for a fuller elaboration.
- ³⁵ Edmund Halley, 'An Account of the Circulation of the Watery Vapours of the Sea and the Cause of Springs' in Philosophical Transactions of the Royal Society, (London 1691).
- ³⁶ Much of the material on Burnet that follows is taken from seminars given by Ted McGuire at Leeds University in October 1967. See also Nicolson, Mountain Gloom and Mountain Glory.
- ³⁷ Burnet, Sacred Theory, vol. I, p. 192.
- ³⁸ Burnet, Sacred Theory, vol. I, p. 195-6.
- ³⁹ Burnet, Sacred Theory, vol. II, bk. IV, ch. xi, pp. 312-313.
- ⁴⁰ Thomas Burnet, Telluris Theoria Sacra: Orbis Nostri Originem et Mutationes Generalis, quas aut iam subiit, aut olim subiturus est, complectens; Libri duo priores de diluvio et paradiso, 2 volumes, (London 1681).
- ⁴¹ Burnet, The Sacred Theory of the Earth: Containing an Account of the Original of the Earth and of All the General Changes Which It Hath Already Undergone or Is to Undergo, till the Consummation of All Things, 2 volumes, (London 1684).
- ⁴² 'De Conflagratione Mundi' and 'De Novis Coelis et Nova Terra' in Thomas Burnet, Telluris Theoria Sacra, 4 volumes, (London 1689).
- ⁴³ Burnet, The Sacred Theory of the Earth, 4 volumes, (London 1690-91).
- ⁴⁴ Burnet, Sacred Theory (London: Centaur Press, 1965).
- ⁴⁵ Burnet, Sacred Theory Book I, chap VI.
- ⁴⁶ Sir William Temple, Essay upon Ancient and Modern Learning (London 1690)
- ⁴⁷ Quoted in Hunt and Willis, The Genius of the Place, pp. 96 ff.
- ⁴⁸ Jonathan Swift, An account of a Battel between the Ancient and Modern Books in St James's Library, (London 1704)
- ⁴⁹ Isaac Newton: letter to Burnet, quoted in David Brewster, Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton (Edinburgh 1855), II, p. 447.
- ⁵⁰ Erasmus Warren, Geologia; or a Discourse concerning the Earth before the Deluge, Wherein the Form and Properties Ascribed to It, in a Book Intituled The Theory of the Earth, Are Excepted Against, and It Is Made to Appear That the Dissolution of the Earth Was Not the Cause of the Universal Flood (London 1690), p. 122.
- ⁵¹ John Dennis, Critical Works ed. E. N. Hooker (Baltimore 1939 - 1943), p. 384.
- ⁵² James Thompson, The Seasons (London 1726-30).
- ⁵³ John Dyer, Grongar Hill, (London 1726).
- ⁵⁴ Edmund Burke, A Philosophical Inquiry into the Origins of Our Ideas of the Sublime and the Beautiful (London 1757) probably written about 1748.
- ⁵⁵ Burnet, 'Answer to the Exceptions', in Sacred Theory.
- ⁵⁶ Nicolson, Mountain Gloom and Mountain Glory, pp. 269, 311.
- ⁵⁷ Burnet, 'Answer to the Exceptions', in Sacred Theory.

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- ⁵⁸ George Sherburn, 'Pope and the Great Shew of Nature', in Richard Foster Jones, The Seventeenth Century: Studies in the History of English Thought and Literature (Stanford 1951), pp. 306 ff.
- ⁵⁹ Alexander Pope and John Gay, Three Hours after Marriage: A Comedy (London 1717), p. 21. Longinus was a fifth century writer who established the rhetorical sublime as a style of writing; interest was rekindled in his works as a result of Burnet's writings.
- ⁶⁰ William Shenstone, 'Unconnected Thoughts on Gardening', in The Works in Verse and Prose, of William Shenstone, esq., ed. Robert Dodsley (London 1764): reprinted in Hunt & Willis, The Genius of the Place, pp. 289-297.
- ⁶¹ Shenstone, 'Unconnected Thoughts on Gardening', quoted in Hunt & Willis, The Genius of the Place, p. 289.
- ⁶² Shenstone, 'Unconnected Thoughts on Gardening', quoted in Hunt & Willis, The Genius of the Place, p. 295.
- ⁶³ Now sadly cut off by the canal embankment – though so too is the view of Halesowen's sprawl!
- ⁶⁴ Shenstone, 'Unconnected Thoughts on Gardening', quoted in Hunt & Willis, The Genius of the Place, p. 291.
- ⁶⁵ Shenstone, 'Unconnected Thoughts on Gardening', quoted in Hunt & Willis, The Genius of the Place, p. 291.
- ⁶⁶ Hunt & Willis, The Genius of the Place, p. 293.
- ⁶⁷ Hunt & Willis, The Genius of the Place, p. 291.
- ⁶⁸ Sir Uvedale Price, An Essay on the Picturesque as compared with the Sublime and the Beautiful: and on the use of studying pictures for the purpose of improving real landscape, (London, Hereford, 1794): reprinted in Hunt & Willis, The Genius of the Place, pp. 351-357
- ⁶⁹ Hunt & Willis, The Genius of the Place, p. 354.
- ⁷⁰ Hunt & Willis, The Genius of the Place, p. 355.
- ⁷¹ Hunt & Willis, The Genius of the Place, p. 354.
- ⁷² Ruskin, John, The Seven Lamps of Architecture (London 1849), as quoted in George Landow, The Aesthetic and Critical Theories of John Ruskin, (Princeton 1971).
- ⁷³ Ruskin, John, Modern Painters vol. 4, as quoted in Landow The Aesthetic and Critical Theories of John Ruskin.