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The Nature of the Universe

George Buchanan (1506–1582), *De sphaera* 1.1–51

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Introduction

De sphaera ('*On the sphere*') was written by George Buchanan (1506–1582), the prolific and well-respected writer and educationalist. After attending local schools in Killearn, the Gaelic-speaking community in the western highlands of Scotland, where he was born, Buchanan studied at the University of St Andrews, leaving in 1525. He then attended the University of Paris, where, after gaining a BA in 1527, he held various teaching and administrative posts (Procurator of the German Nation) and where he also tutored various members of the French and Scottish nobility over a ten-year period. From 1539 until 1550 he worked with other educationalists, especially Elie Vinet, reforming colleges in Bordeaux (Collège de Guyenne), where he taught the French philosopher Michel de Montaigne, and in Coimbra, Portugal, where he was latterly detained (1550–1552) by the Inquisition for confessional transgressions. During this period Buchanan continued his work on the paraphrases of the Psalms of David, publishing many of them in 1556. It was also during this period that Buchanan became tutor to Timoléon de Cossé, son of Charles de Cossé, first Count of Brissac. Buchanan returned to educational reform in 1566, when he was appointed Principal at St Leonard's College, St Andrews. In 1570, he was appointed tutor (along with Peter Young) to the young King James VI of Scotland (future James I of England). During his time as tutor to Timoléon and James, Buchanan wrote and published many of his most famous works – many of which present a stabilizing philosophical message heavily influenced by Stoic moral and natural philosophy – including *De Iure Regni apud Scotos Dialogus* ('*A Dialogue on the Law of Kingship among the Scots*') and *Rerum Scotticarum Historia* ('*A History of Scottish Affairs*').

Despite his many interests and activities, Buchanan dedicated a large part of his life to composing the poem *De sphaera* (McFarlane 1981:

355–62). He began writing it in the mid-sixteenth century, just as the commentary tradition on the *Sphaera Mundi* ('*The Sphere of the World*') of Johannes de Sacrobosco was being reinvigorated as a teaching aid in universities, specifically by Buchanan's friend and colleague Elie Vinet (McOmish 2018: 164). The philosophical stimulus for both Buchanan's poem and Vinet's commentary came from the publication in 1543 of Nicolaus Copernicus' *De Revolutionibus Orbium* ('*On the Revolutions of the Spheres*'), whose heliocentric arguments undermined the natural philosophy on which traditional religious and moral order (essentially Stoic and Aristotelian) depended. The opening section of *De sphaera*, with its literary and philosophical allusions to the classical writers Ovid, Manilius and Lucretius, shows that the promotion of a geocentric universe was Buchanan's ultimate philosophical goal. Also during this time, the mnemonic tradition of technical poetry that had been a mainstay of medical instruction in the medieval Arabic and European schools (especially the *Cantica Avicennae* and *Regimen Sanitatis Salernitanum*, Latin verses used in the universities of Salerno, Montpellier and Paris to memorize the medical precepts of Ibn Sina and others) had taken root in astronomical teaching, thanks largely to Johannes Honter's versification of his own prose work, *Rudimenta Cosmographica* ('*Beginnings of the Universe*') (Kronstadt 1542). That poem's success is attested by the subsequent twenty-plus editions printed over the next forty years.

Buchanan's *De sphaera*, however, did not share in Honter's success. Buchanan did not complete his five-book poem by the time of his death in 1582 (Books 1 to 3 were completed, but 4 and 5 were unfinished), and it has remained something of a historical curiosity, baffling scholars of literature, history and science alike (McFarlane 1976: 206; Russell 1972: 228). It is reasonable to assume, however, from the evidence of the production context outlined above, the albeit formulaic pedagogical dedications to a specific pupil (Timoléon de Cossé) in the poem itself and the subsidiary title of *Rudimenta Caelestia* ('*Heavenly Beginnings*') given to an instructional edition of the text in 1616 (see below), that rudimentary instruction in cosmology was a core concern (see McOmish 2018: 164–6, *pace* McFarlane 1976: 199).

This edition of the opening of Buchanan's poem will focus upon the poem's significance as an educational tool. The text of *De sphaera* below is a faithful reproduction from the only surviving contemporary manuscript of the poem, Adam King's 1616 edition housed in the University of Edinburgh (University of Edinburgh Centre for Research Collections: shelfmark Dk.7.29). In his preface, King states that the text in the manuscript is a faithful transcription of Buchanan's own copy. King's edition was used for instruction in astronomy and mathematics at the University of Edinburgh for large parts

of the seventeenth century (McOmish 2018: 159). It introduced generations of students at Edinburgh to the contrasting ideas of Nicolaus Copernicus, Tycho Brahe, Johannes Kepler and Galileo Galilei among many others, and the anti-authority scepticism of Petrus Ramus and the proto-empiricism of the Parisian Pyrrhonists (see Introduction to Text 8). The notes below are based on Adam King's commentary to the poem. They will only draw attention to Buchanan's literary sources when these directly impact his core philosophical message. Buchanan's tendency to mask his philosophical inspiration (be it prose or verse) behind a pleasing appropriation of a favourite poet (Ovid especially) sheds light upon his compositional approach, and as such, instances of this will be noted. Adam King's *Genethliacon*, also included in this volume, plays a literary game with Buchanan's sources. It provides a useful overview of the elemental aesthetics ('tags') of Buchanan's poetry to the interested reader.

Metre: dactylic hexameter

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Source of the Latin text

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Latin text

Georgii Buchanani Sphaerae Liber I

- Quam variae mundi partes, quo semina rerum
 foedere conveniant discordia; lucis et umbrae
 tempora quis motus regat; aestum frigore mutet,
 obscuret Solis vultum, Lunaequae tenebris,
 5 pandere fert animus. Tu qui fulgentia puro
 lumine templa habitas, oculis impervia nostris,
 rerum sancte parens, audacibus annue coeptis:
 dum late in populos ferimus tua facta, polique
 immensum reseramus opus: gens nescia veri,
 10 ut residem longaque animum caligine mersum
 attollat caelo, et flammantia moenia mundi
 dum stupet, et vicibus remeantia tempora certis,
 auctorem agnoscat: tantam qui robore molem
 fulciat; aeternis legum moderetur habenis,
 15 consilio nostrosque bonus conformet ad usus.
 Tu mihi, Timoleon magni spes maxima patris;
 nec patriae minor; aonii novus incola montis,
 adde gradum comes, et teneris assuesce sub annis
 Castalidum nemora, et sacros accedere fontes;
 20 nympharumque choros; populoque ignota profano
 otia, nec damnis nec amarae obnoxia curae.
 Tempus erit cum tu (veniat modo robur ab annis)
 spumantes versabis equos in pulvere belli
 torvus; et in patriam assurgens non degener hastam:
 25 interea genitor Ligurum sine fulminet arces,
 Germanosque feros, et amantes martis Iberos,
 consiliis armisque premat; francisque trophaeis
 littora Phaebaeos decoret testantia luctus.
 Hoc quodcunque vides, circumque infraque supraque,
 30 volvere perpetuo labentia secula motu;
 omnia complexum gremio; longaeva vetustas
 admirata decus varium, purique nitorem
 aetheris, et puros radiati luminis orbes;
 uno appellari consensit nomine mundum.

English translation

How changeable are the universe's regions, by what law are different atoms of matter brought together, what force regulates the periods of light and dark, alternates heat with cold, and covers the face of the Sun and Moon in darkness, all of this my mind moves me to disclose. You who inhabit the regions shining with pure light that are impervious to our view, sacred parent of the universe, approve my daring endeavour, while I relate your deeds to people everywhere and reveal the immense structure of the heavens, so that those unfamiliar with the truth may lift up to heaven their sluggish minds, long-mired in darkness, and as they gaze dumb-struck at the flaming walls of the universe, and its times recurring in fixed mutations, they may know its author, who supports so great a mass with his strength, steers it with the unwavering reins of his laws, and in his goodness shapes it providentially for our uses.

You, Timoleon, greatest hope of a great father, and no less a hope of your country too, new dweller on the Aonian mount, add your step to mine as my companion, and become accustomed in your early years to approach the groves of the Castalian Muses and sacred fountains; and attend the choruses of the Nymphs, and peaceful contemplation free from bitter worry and loss, unknown to the uninitiated populace. A time will come (let strength but come from your years) when you will sternly wheel seething steeds in the dust of battle, reaching the heights of your father's spear, and no disappointment to your ancestors. For the moment, let your parent bombard the citadels of the Ligurians, and the fierce Germans, and the war-loving Spaniards, and let him overwhelm them with his strategies and arms; and may he decorate with French trophies the shores that bore witness to Apollo's laments for Phaethon.

All around, above, and below, you see that the universe turns the flow of time in never-ending motion. It envelops all in its bosom. Aged antiquity,

- 35 Et quanquam moles omni sibi parte cohaerens
una sit; et nexis per mutua vincula membris
conspiret; positasque semel rectore sub uno
observeat leges: Non est tamen omnibus unum
partibus ingenium, non vis nativa: sed orbes
40 astriferi, et nitidi sublimis regia caeli
immunis senii; et vultu immutabilis uno,
perpetuum servat solida et sincera tenorem.
At quicquid gremio lunae complectitur orbis
permutat variatque vices; trepidoque tumultu
45 aestuat; et nunquam sentit pars ulla quietem:
sed ruit in sese, civili vulnere semper
aut cadit aut perimit; alioque renascitur ore;
rursus ut intereat: nam pars haec infima mundi,
quatuor includit genitalia corpora; terram
50 et tenues undas; quique undis altior aer
incubat; et volucrem campos super aeris ignem.

admiring its variegated beauty, the splendour of the pure ether, and the pure
globes of radiant light, agreed that it be called by a single name: universe. Yet, 35
although it is a single structure bound together as one whole, and is united by
limbs joined in mutual chains, and observes the laws that were set down once
and for all by a single ruler, nevertheless all parts do not have a uniform 40
character, or single innate essence. For the star-bearing spheres, and the
sublime palace of bright heaven, immune to decay, and unchangeable in
appearance, preserves an eternal course, untainted and solid. Yet, whatever is
embraced within the orbit of the moon changes utterly and alters its 45
condition, and convulses in restless commotion. No part ever experiences
rest, but rather it smashes down upon itself, either destroying or being
destroyed by fratricidal blow, and is born again in a different guise in turn to
pass away anew. For this lowest part of the universe contains four generative 50
bodies: the earth; its overlapping waters; the air, which, farther up, lies upon
the waters; and winged fire above the levels of the air.

Commentary

1–5 *semina rerum ... pandere fert animus*: Buchanan recasts Lucretius' *semina rerum* (the atoms of Epicurean philosophy) as the four Empedoclean elements (fire, air, water, earth), following in the polemical anti-Lucretian footsteps of Virgil (see Farrington 1963), Ovid (see Gee 2009) and Manilius (see McOmish 2019). For discussion of the literary impact of this Stoic/Epicurean dialectic upon writers like Girolamo Fracastoro, Buchanan and other contemporary Scots like David Kinloch, see McOmish 2019: 251–5. The opening five lines of the poem are indebted to Ovid, *Metamorphoses* 1.1–9, for specific diction (see Gee 2009: 41–5), and Virgil, *Georgics* 1.1–5, for structure and intent (McOmish 2019: 253). See also the opening to Adam King, *Genethliacon* (Text 8), for a well-developed contemporary example of the continued influence upon early modern intellectual discourse.

1 Buchanan's parts of the universe (*mundi partes*) are: the domain of the heavens and the domain of the terrestrial elements. His poem will relate the composition of these parts of the universe and explain the nature of variance and change within them.

1–2 Buchanan's atoms/seeds (*semina*) are discordant in that they are differing elements, which come together in different admixtures to make divergent bodies, as he will explain later in the poem (formally introduced at lines 43–50). The process of elemental admixture and mutation operates within the limitations of God's law (*foedere*).

5 This appeal to the divinity to sanction this work directly appropriates the language of Latin epic (didactic and heroic): Virgil, *Georgics* 1.40; *Aeneid* 9.625. However, Buchanan's overt attempt to procure divine favour for his simulation of divine things (cosmos) has deeper implications for the view of him as poet and of his poetry: compare Plato's rejection of Homer as mere artist/poet in favour of a divinely inspired devotee aiming at imitation (mimesis) of the divine (*Ion*, esp. 534). As Buchanan implies in lines 7–14, the sanction of the divinity will enable him to reveal the truth in all its glory to his audience.

6 Following in the tradition of Aristotle (*De Caelo* 1.3), Buchanan locates the home and abode of divinity in the heavens. Cf. also Homer's description of the pure light permeating the eternal abode of the gods in the sky: *Odyssey* 6.41–6.

9 *nescius*: here takes the genitive case.

11 Cf. Lucretius, *De rerum natura* 1.73. See also n. on King, *Genethliacon* 10–11 (Text 8) for broader discussion of Buchanan's use of this passage from Lucretius.

13–15 *qui ... fulciat ... moderetur ... conformet*: relative clause of characteristic or generic subjunctive, presenting the type of behaviour and character required (and expected by the viewer) to be the *author* of the universe.

15 An explicit censure of Epicurus' rejection of divine providence or divine intervention in human affairs, delivered allusively by textual rejection (*consilio*) of Lucretius, *De rerum natura* 1.1021; 5.419.

16 Timoléon de Cossé, future Count of Brissac (Anjou), son of Charles de Cossé, first Count of Brissac. In 1555 Charles invited Buchanan to be tutor to Timoléon, while Charles waged a military campaign on behalf of Henri II of France against towns along the banks of the Po river in the Piedmont region of Italy, who were sympathetic to Charles V, Holy Roman Emperor. Buchanan educated the young boy (who was 11 in early 1555) in both France and Italy until 1560. Buchanan mentions Timoléon at *De sphaera* 1.16, 2.1, 3.1 and 5.80.

20–21 Accusatives still conditioned by *accedere* in line 19.

25 The Ligurian cities and region Buchanan refers to encompass the modern regions of Piedmont, Liguria and Western Lombardy, historically known as Ligurian Cisalpine Gaul. It is defined as such by Pliny, *Natural History* 3.5. Pliny's *Natural History* is Buchanan's source for much content throughout *De sphaera* (esp. Book 5). *sine fulminet*: *sino* (here in the imperative form *sine*) takes the subjunctive *fulminet*.

26 A reference to the German soldiers in the service of Emperor Charles V; and an allusion to those from the Iberian peninsula who made up the bulk of the army of Charles V, and their love of Mars (war), a commonplace in Latin poetry: see e.g. Silius Italicus, *Punica* 1.225–8; 3.329–31.

28 This relates to the myth of Phaethon, son of Apollo (Phoebus), who died after crashing the chariot of his father Apollo into the river Eridanus (popularly assumed to be either the Po or near it: e.g. Strabo, *Geography* 5.1.9), plunging his father into grief. For an extended verse version of the myth, accompanied with local Ligurian eye-witnesses to the crash (King of the Ligurians, Cycnus), see Ovid, *Metamorphoses* 2.31–400. Buchanan's reference to the Phaethon myth, while providing geographical specificity to his and his pupil's location, ultimately serves as a warning to Timoléon not to rush into his father's footsteps unprepared (i.e. without Buchanan's instruction). The motif of Timoléon/Phaethon recurs throughout *De sphaera*: for an introductory overview of literary correspondences between Buchanan and Ovid in this regard, see Gee 2009: 50–3. *littora* is here used for *litora*, and *Phaebaeos* for *Phoebaeos*.

29 Buchanan presents the universe in every part and all directions as a single entity, governed by a single ruler. See Plato, *Timaeus* 30–1 (esp. 30D); Pseudo-Aristotle, *De Mundo* 391b2. *quodcunque* is here used for *quodcumque*.

34 Buchanan's idea and specific diction come from Pliny, *Natural History* 2.8 (2.3 old numbering): *consensu gentium moveor; namque et Graeci nomine ornamenti appellavere eum et nos a perfecta absolutaque elegantia mundum* ('I am swayed by the agreement of the nations. For the Greeks also called it after the name for ornament [cosmos], and we have called it *mundus* from its perfection and complete refinement').

35–7 For the universe as a living, breathing entity, see Plato, *Timaeus* 30C.

35 *quanquam* (*quamquam*) here takes the subjunctive instead of the usual indicative. Livy and Tacitus, both of whose work Buchanan knew well (for his reliance upon Livy especially, see his *Genethliacon* on the birth of James VI), use *quamquam* with the subjunctive to state perceived fact with no potential or conditional meaning. Although it is possible that Buchanan may be highlighting the conjectural nature of his narrative, it would be out of keeping with the general tone of certainty of the poem's exordium.

40–2 A literary allusion to and pointed rejection of the process of elemental infestation of the heavens articulated by Lucretius, *De rerum natura* 5.490 and 5.508. See also n. on 15 for the importance of this passage from Lucretius to Buchanan's philosophical position in this introduction. See Naiden 1952: 52–4 and 56–60 for the possibility that Buchanan was also alluding to contemporary astronomers and their work on superlunary change. Adam King, who would later use Buchanan's poem as a point of reference for his academic commentary, conspicuously altered his reference to these lines at *Genethliacon* 10–14, to reflect contemporary evidence for transience in the heavens. *immunis* takes the genitive; *solida et sincera* agrees with *regia*.

43 This line marks Buchanan's formal division of the universe into two: the celestial and the elemental (terrestrial). He will deal with the elemental in Book 1 and with the celestial in Book 2.

49 Buchanan's presentation of the universe ordered according to the four elements follows the ancient authority of Plato, Aristotle and Galen, and those who followed them in the medieval schools. It was a hotly contested subject in Buchanan's time. Girolamo Cardano (*De Sublimitate* 2) and Johannes Pena (*In praefationem ad Euclidis Optica*), along with Tycho Brahe, Christoph Rothmann and other contemporary writers, questioned key aspects of it. Adam King, who often reworks Buchanan's poetry to reflect the

new sciences, studiously avoids stating that there are four elements when referencing Buchanan's poetry from this section: King, *Genethliacon* 16–17.

49–51 Buchanan frames this section of his provisional description of the elemental composition of the universe with lines from Ovid, *Metamorphoses* 15.239–40: *quattuor aeternus genitalia corpora mundus | continet* ('the eternal universe contains four generative bodies'), where Ovid begins his description of the universe; Buchanan then closes the frame with Manilius, *Astronomica* 1.149: *ignis in aetherias volucer se sustulit oras* ('fire in flight bore itself aloft into the etherial regions'), from Manilius' section describing the elemental composition (*opus generabile . . . omnis partus elementa capacia*: 'generative work . . . elements capable of all production', *Astronomica* 1.143–4) of the universe. The content, and often the same specific diction, of this section can be found in both Ovid, *Metamorphoses* 1.26–35 and 15.239–51, and Manilius, *Astronomica* 1.149–70. Adam King, in his *Genethliacon*, when reworking this section of *De sphaera* for his own philosophical ends, often playfully interchanged passages from Ovid with text from corresponding sections in Manilius: see text and notes to *Genethliacon*, esp. 17–25 (Text 8).