

The Man in the Moone and the New Astronomy: Godwin, Gilbert, Kepler

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The Element of Fire is quite put out, the Aire is but Water rarified, the Earth is found to move, and is no more the Center of the Universe, is turned into a Magnes [i.e. magnet]; Starres are not fixed, but swimme in the etheriall Spaces, Cometes are mounted above the Planetes; Some affirme there is another World of men and sensitive Creatures, with Cities and Palaces in the Moone ... Thus, Sciences by the diverse Motiones of this Globe of the Braine of Man, are become Opiniones, nay Errores, and leave the Imagination in a thousand Labyrinthes.¹

In this extract from his *The Cypresse Grove* of 1623, William Drummond of Hawthornden records the bewildering impact of the New Astronomy in the early seventeenth century. Recapitulating lines from John Donne's *Anatomie of the World*, he rehearses some of the wild speculations for which he believed the New Astronomy to be responsible. The fantastical potential of such speculations was recognised rather differently by a contemporary of Drummond's, Francis Godwin, Bishop of Hereford (1562-1633), one the first writers of science fiction in English. Far from being daunted by developments in contemporary astronomy, Godwin seized on them to provide a suitable astronomical setting for his voyage of utopian discovery, recounted in his *The Man in the Moone*. Posthumously published in 1638, this book incorporates many of the astronomical views which vexed Drummond. Instead of dismissing new astronomical thinking as mere opinions,

¹ William Drummond of Hawthornden, *A Cypresse Grove, in Drummond of Hawthornden, Poems and Prose*, ed. R.H. MacDonald, Edinburgh and London, Scottish Academic Press, 1976. «Magnes»: i.e. «magnet». Compare, John Donne *An Anatomie of the World*, ll. 205-8:

The new philosophy puts all in doubt,
The Element of Fire is quite put out,
The sun is lost, and the earth, and no man's wit
Can well direct him where to look for it.

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Godwin endorses it by means of fiction. Among the doctrines which Drummond dismisses as mere conjecture, Godwin seizes on the view that the moon might be inhabited, that the earth is a giant magnet (described as a «loadstone»²), and that it rotates on its own axis. Godwin's combination of fact and fantasy, or as it is put in the introduction to the work, «invention» and «judgement», has caught the imagination of his modern readers and was commended even in the seventeenth century³. It is now generally agreed that the voyage to the moon in Godwin's story is made possible by, and therefore confirms, a post-Copernican view of the universe⁴. Nevertheless, although Copernicus is the only astronomer he mentions by name, Godwin is distinctly cautious in his views on Copernicanism. And the details of the fictional cosmos he constructs are suggestive of the impact of others besides Copernicus, principally Kepler and Gilbert. In this paper, I shall examine Godwin's «Copernicanism» by relating his views to two works not so far considered in the quest for Godwin's sources: Kepler's *Somnium sive opus posthumum de astronomia lunaris* (1634) and Gilbert's *De mundo nostri sublunari philosophia nova* (1651).

The Man in the Moone is a short work in which the moon episode and the voyage thither constitute the most spectacular in a series of wanderings which start in the Spanish empire, include a *Robinsonade* on St Helena, and end in China. To isolate the lunar episode from the rest is to ignore the utopian significance of the

² Francis Godwin, *The Man in the Moone: or a Discourse of a Voyage thither by Domingo Gonsales*, London, 1638. I have used the Scholar Press facsimile reprint, London, 1971 (hereafter referred to as Godwin). Modern editions: (1) Grant McColley, «*The Man in the Moone and Nuncius Inanimatus*», *Smith College Studies in Modern Languages*, 19, Northampton, MA, 1937; (2) with introduction by A. Johnson and R. Shoesmith, Little Logaston, Logaston Press, 1996. A new edition is being prepared by William Poole. For the fullest bibliographical survey, see M. Winter, *Compendium Utopiarum. Typologie und Bibliographie literarischer Utopien*. Repertorium zur deutschen Literaturgeschichte, Band 1, Stuttgart, Metzler, 1928.

³ Godwin, sig A3. The introduction to the German translation, *Der fliegende Wandersman nach der Mond* (Wolfenbüttel, 1659), calls the work «Geschichte oder Gedicht». This translation was made from the French of J. Baudoin, *L'homme dans la lune*, Paris, 1648, who recommends it as «une Fable», noting that «les contes fabuleux bien imaginez, agreeent plus a l'oreille que les Histoires veritables, quand elles sont mal debitees», sig. Aii2. For modern views, see G. McColley, «The Date of Godwin's *Domingo Gonsales*», *Modern Philology*, 35 (1937), pp. 47-60, p. 49; V. Dupont, *L'utopie et le roman utopique dans la littérature anglaise*, Thèse de l'Université de Lyon, Cahors, A. Coueslant, 1941, p. 165; M. Schwonke, *Vom Staatsroman zur Science Fiction*, Göttinger Abhandlungen zur Soziologie, Bd. 2, Stuttgart, Enke, 1957, pp. 17ff. Raymond Trousson, however, typifies Godwin as taking the opposite extreme of the arid realism of Harrington, *Voyages aux pays de nulle part: histoire littéraire de la pensée utopique*, Bruxelles, Éditions de l'Université de Bruxelles, 1975, p. 94.

⁴ See especially McColley, «*The Man in the Moone*». Also Schwonke and Dupont. Winter misleadingly claims that Gonsales reports the opinions of Galileo, Kepler and Copernicus and confirms their validity.

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whole story, in which the utopian element implicitly invites comparisons between the societies which Gonsales visits. By focusing on the journey to the moon, as I propose to do, I shall inevitably perpetuate a tendency to partial focus among Godwin's modern critics⁵. Gonsales' lunar journey is important not just for its obvious historical interest, but as a vital component in the utopian aspect of the narrative, as the vital link between earthly and lunar societies. Gonsales' lunar voyage, therefore, constitutes not merely a digression into science fiction, but an essential part of the narrative machinery for linking the utopian moon with the not-so-utopian earth.

Although there were literary precedents for trips to the moon, dating back to antiquity — notably Lucian and Plutarch⁶, *The Man in the Moone*, with its fundamental earth-moon analogy, would appear to have been written under the impact of Galileo's telescopic observations of the moon. Godwin's familiarity with *Sidereus nuncius* (1610) is implied in his choice of title for another piece, also published under a pseudonym, his *Nuncius inanimatus* (1629) which claims «Utopia» as its provenance. The Preface to *The Man in the Moone*, signed «E. M.», places the book in a Galileian context with the comment, «our Galilaeusses can by advantage of their spectacles gaze the Sunne into spots, & descry mountains in the Moon»⁷. And Domingo Gonsales is described on the title page as «The Speedy Messenger». However, Galileo did not concede that there was life on the moon. However his vivid descriptions of the lunar landscape in *Sidereus nuncius* fuelled speculation that the moon, like the earth, might be inhabited⁸.

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⁵ Most accounts of *The Man in the Moone* ignore the China episode. One exception is Paul Cornelius, *Languages in Seventeenth and Eighteenth Century Imaginary Voyages* (Geneva, Droz, 1965), which, for obvious reasons, confines discussion to language.

⁶ Most importantly, Lucian, *Ikaromenippos* and *Alethon Diegematon (A True Story)*. See *Lucian with an English translation* by A. Harmon (London, Heinemann, 1913), vols 1 and 2.

⁷ Godwin, *op. cit.*, sig. A3⁴⁻⁵. For *Nuncius inanimatus*, see McColley, «*The Man in the Moone*», *op. cit.*

⁸ For the impact of *Sidereus nuncius*, see M. H. Nicolson, *A World in the Moon. A Study of the Changing Attitude toward the Moon in the Seventeenth and Eighteenth Centuries*, *Smith College Studies in Modern Languages*, 17, Northampton, MA, 1936, *Science and Imagination*, Ithaca NY, Great Seal Books, 1956, and *Voyages to the Moon*, New York, Macmillan, 1960 (1948). Also S. Dick, *A Plurality of Worlds. The Extra-Terrestrial Life Debate from Democritus to Kant*, Cambridge, Cambridge University Press, 1982. F. R. Johnson is, it seems to me, to precipitate in asserting that *The Man in the Moone* antedates *Sidereus nuncius*, in *Astronomical Thought in Renaissance England* (Baltimore, Johns Hopkins Press, 1937, p. 233). Johnson discounts McColley's evidence for a later date.

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The most eminent astronomer to indulge in such speculations was Johannes Kepler, whose *Somnium sive opus posthumum de astronomia lunaris* describes a journey to the moon and the habitat of the inhabitants found there. Although this book was not published until 1634, it was, apparently written prior to the publication of *Sidereus nuncius*⁹. But as is evident from his *Dissertatio cum nuncio sidereo*, Kepler found in Galileo's book further grounds for his speculations that the moon might be inhabited¹⁰.

In its basic conception as an imaginary trip to the moon, Kepler's *Somnium* is the closest contemporary analogue to *The Man in the Moone*, especially since both address the contemporary debates on astronomy. In addition to the fact that they both imagine the moon is inhabited, there is another important respect in which they both differ from Galileo; and that is that both Domingo Gonsales and Kepler's narrator, Duracotus, find visible proof that the light and dark spots on the moon are sea and land, respectively. Like Kepler in the *Somnium*, but unlike Galileo, Gonsales reveals that the dark spots are land and the bright areas water¹¹. Other tantalising similarities of detail between Kepler and Godwin include the fact that Kepler recommends Spaniards as the most suitable moon voyagers¹² and that Godwin's hero is Spanish. Domingo Gonsales encounters demons on his journey: Kepler's lunar voyager travels the demons' route to the moon¹³. In each story the start of the journey requires great effort to overcome the magnetic pull of the earth¹⁴. But once beyond that, travel is unhindered. In both the speed of travel is compared to a bullet fired from a cannon¹⁵. Both Godwin's Lunars and Kepler's Levanians are notable for their tall stature. Godwin's lunars are able to fly by

⁹ My references are to the English translation of *Kepler's Dream with the full text and notes of the Somnium, sive astronomia lunaris*, translated by P. F. Kirkwood and with an introduction by J. Lear (Berkeley and Los Angeles, UCLA Press, 1965). On the shortcomings of this version, especially the interpretation, see the review by D. P. Walker in *The New York Review of Books*, 7, 22 Sept. 1966, pp. 10-12. For an academically superior version, see E. Rosen, *Kepler's Somnium. The Dream, or Posthumous Work on Lunar Astronomy*, London, Madison, Wisconsin University Press, 1967. Rosen suggests that the *Somnium* derives from an unpublished Tübingen dissertation of Kepler's: see Appendix C and Introduction. The *Somnium* was probably composed in 1609. Kepler added extensive notes to the published version. See also, M. H. Nicolson, «Kepler, the *Somnium* and John Donne» in *Science and Imagination*, and Rosen, *Kepler's Somnium*, Appendix E. Also D. H. Menzel, «Kepler's Place in Science Fiction», in *Kepler, Four Hundred Years. Proceedings of Conferences held in Honour of Johannes Kepler*, ed. A. and P. Beer, Oxford, New York, etc., Oxford, New York, Pergamon Press, 1974, pp. 895-904.

¹⁰ *Kepler's Conversation with Galileo's Sidereal Messenger*, trans. E. Rosen, New York and London, Johnson Reprints, 1965, p. 23.

¹¹ Godwin, *op. cit.*, pp. 63-4; *Somnium, op. cit.*, pp. 139-43.

¹² *Somnium, ibid.*, p. 104.

¹³ Godwin, *op. cit.*, pp. 48-51; *Somnium, op. cit.*, p. 102.

¹⁴ Godwin, *op. cit.*, p. 45; *Somnium, op. cit.*, p. 106.

¹⁵ Godwin, *op. cit.*, p. 61; *Somnium, op. cit.*, p. 106.

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jumping «beyond all attraction of the Moones earth». Kepler says some of his Privolvans can fly¹⁶. These details are minor points, and can probably be explained by reference to shared literary precedents¹⁷. Besides, the *difference* of detail are equally telling: Gonsales' journey takes twelve days, and he travels with the aid of bird power (his famous Gansas), while Duracotus describes being propelled to the moon by demons along the conical shadow of the earth in the space of four hours. Kepler's cosmonaut has to cope with intense cold while he travels: Gonsales remarks on the temperateness of the atmosphere.¹⁸ Other such differences of detail could be listed. However, there is one further very striking parallel between the two accounts, and that is the way the earth is seen by each voyager.

In both Kepler's *Somnium* and *The Man in the Moone*, there is remarkable similarity in the general impression of the earth reported by the voyager, even though each observes different continents. In both Kepler's and Godwin's accounts the rotation of the earth is recognised by observing the movement of the light and dark area of the earth's surface. According to the latter,

... and even as in the Moone we discerned certaine spots or clouds as it were, so did I then in the earth. But whereas the forme of those spots in the Moone continue constantly one and the same; these little and little did change every hower ... I should at the first see in the middle of the body of this new starre a spot like unto Peare that had a morsel bitten out upon the one side of him; and after certain howers, I should see that spot slide away to the *East* side. This no doubt was the main of *Afrike*,

Then should I perceive a great shining brightnesse to occupy that roome, during the like time (which was undoubtedly none other then the great Atlantick Ocean.¹⁹

Kepler notes that the earth (called Volva) «turns like a wheel in its own place and displays a remarkable variety of spots, one after the other, these spots moving along constantly from east to west»²⁰. Like Godwin, Kepler identifies the dark areas of the earth's surface as continents, and the bright ones as seas. But footnote 154 explains that in the *Dissertatio cum nuncio sidereo* Kepler reversed the identification in conformity with Galileo's *Sidereus nuncius*²¹. Another curious

¹⁶ Godwin, *op. cit.*, pp. 74-5 and 80; *Somnium*, *op. cit.*, p. 155.

¹⁷ Principally Lucian: in *A True Story*, 1, some of Endymion's lunar troops are mounted on vultures, others on insects of prodigious size, including fleas as large as twelve elephants, *True Story*, 11 and 13. For the view that the sublunar sphere is the habitat of demons, see Robert Burton, *The Anatomy of Melancholy*, ed. F. Dell and P. Jordan-Smith (New York, Farrar and Rinehart, 1927), pp. 165-6, in *A Digression of the Nature of Spirits, bad Angels, or Devils, and how they cause Melancholy*.

¹⁸ Godwin, *op. cit.*, p. 60; *Somnium*, *op. cit.*, pp. 104, 107, 109.

¹⁹ Godwin, *op. cit.*, pp. 56-7.

²⁰ *Somnium*, *op. cit.*, p. 135.

²¹ *Ibid.*, p. 141.

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difference of detail is the different direction in which he describes the earth as moving (east to west, rather than west to east). In both Godwin and Kepler the passage of time is estimated by reference to the rotation of the earth²². And Kepler, like Godwin, later, describes the continents figuratively, identifying them in the footnotes: Africa is «a human head cut off at the shoulder», Europe, «a young girl with a long dress», who is «enticing a cat» that represents Britain. The Atlantic is a «shining girdle».²³ The importance of their respective descriptions of the earth is not just the visual image conveyed, but the fact that this is used in both cases to prove by demonstration and not by argument, the diurnal rotation of the earth. In footnote 96, Kepler calls this, «the hypothesis of the whole dream», and he achieves his end by the device of altering our perspective on the earth by imagining how it would appear if observed from the moon. This kind of alteration of perspective is a device used by Godwin. However, Kepler's chief overall aim, unlike Godwin's, was to demonstrate the plausibility of Copernicanism. Although he gives an account of the inhabitants of the moon, he is less interested in their social organisation than in the conditions of life on the moon and the apparent movement of the celestial bodies when observed from the moon. With Godwin it is the reverse: he is primarily interested in the society Gonsales finds on the moon, and only incidentally in establishing the truth of «the late opinion of Copernicus», namely, the diurnal rotation of the earth²⁴.

Godwin's reluctance to accept the annual motion of the earth round the sun sets him apart from the life-long Copernican, Kepler. Gonsales avouches, «I will not go so farre as *Copernicus*, that maketh the Sunne the Center of the Earth, and unmovable, neither will I define any thing one way or the other»²⁵. Such caution about heliocentrism was not unusual at this time. The most well-known variant on Copernicanism was Tycho Brahe's system which combined geocentrism with features of heliocentrism. Tycho did not accept the diurnal rotation of the earth, however²⁶. Godwin's qualified acceptance of Copernicanism must be taken in conjunction with other aspects of Gonsales' account not so far discussed. For not only does *The Man in the Moone* entail an analogy between moon and earth (he calls the moon «another earth»)²⁷, but he attributes magnetic properties to both moon and earth. He calls the earth a «tyrannous loadstone»²⁸, whose attractive beames» are much more powerful than those of the moon. This combination of

²² *Ibid.*, pp. 139-40. Cf. *Kepler's Conversation*, , *op. cit.*, 24-7.

²³ *Somnium*, *op. cit.*, pp. 137-8; Godwin, *op. cit.*, p. 66.

²⁴ *Ibid.*, p. 53.

²⁵ *Ibid.*, p. 60.

²⁶ For a seventeenth-century summary of some of the variants of Copernicanism, see Burton's, «Digression of Air», in *Anatomy*, *op. cit.*, p. 427.

²⁷ Godwin, *op. cit.*, p. 63.

²⁸ *Ibid.*, p. 65.

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cautious Copernicanism, the use of the earth-moon analogy, and the magnetic properties of both earth and moon point to William Gilbert whose *De magnete* not only describes the earth and moon and similar, but supplies an explanation of the diurnal rotation of the earth in magnetic terms. Simultaneously, Gilbert reserves his judgement about the annual motion of the earth and devotes a whole chapter to refuting the arguments for the diurnal revolution of the fixed stars *per raptum primum mobilis*²⁹. And, like Gilbert, his rejection is couched in ridicule³⁰. Indeed, even before Gonsales reports his observations of the earth, he confirms Gilbert's attribution of magnetic properties to the earth and his denial of the intrinsic weight of heavy things.

I found then by this Experience that which no Philosopher ever dreamed of, to wit, that those things which wee call heavie, do not sinke toward the Center of the Earth, as their naturall place, but as drawn by a secret property of the same, in like sort as the Loadstone draweth Iron, being within the compass of the beames attractive.³¹

Most of these particulars of Gilbert's thought are contained in Book VI of the *De magnete*, which constitutes a cosmological extension of the discussion of magnetism contained in the previous five books. Gilbert's cosmological theories are in turn set out more fully in a later work, his *De mundo nostro sublunari philosophia nova*, which was published posthumously in 1651³². One important respect in which this amplifies the ideas set out in *De magnete* is the coverage it gives to the moon, which, of all the celestial bodies, is the one most fully discussed. And perhaps the most striking feature of the account of the moon is the extent to which the earth-moon analogy is developed. Gilbert refers repeatedly to their similarity: that the moon is another earth sounds like a refrain through Book II, chapter xiv³³. The moon is described in the same terms as the earth: it has its own effluvia and magnetic properties, although these are weaker than the earth's in accordance with its smaller size. The moon maintains its orbit round the earth

²⁹ Gilbert, *De magnete magnetisque corporibus, et de magno magnete tellure: physiologia nova*, London, 1600, Book VI, chapters iii, iv, v. On Godwin and *De magnete* see Johnson, *Astronomical Thought, op. cit.*

³⁰ Godwin, *op. cit.*, p. 58.

³¹ *Ibid.*, pp. 46-7; cf. *De magnete, op. cit.*, pp. 229-30.

³² On Gilbert's cosmology, see Suzanne Kelly, *The «De mundo» of William Gilbert* Amsterdam, Menno Hertzberger, 1965, vol. 1; G. Freudenthal, «Theory of Matter and Cosmology in William Gilbert's *De magnete*», *Isis*, 74 (1983), pp. 22-37. Also R. H. D. Roller, *The 'De magnete' of William Gilbert*, Amsterdam, Menno Hertzberger, 1959. I have used the facsimile of the 1651 edition of the *De mundo*, reproduced in Kelly, vol. 2.

³³ e.g. *De mundo, op. cit.*, p. 173, «Quod vero lunam tellurem alteram minorem, aut corpus aliud telluris modo ordinates existimamus».

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through magnetic attraction³⁴. Moreover, Gilbert regards the dark patches on the surface of the moon as dry land, the bright areas as water: his opinion in this is the reverse of Galileo's and, like Kepler's original view, made on the basis of observation of the reflectivity of the sea when viewed from a mountain³⁵. He also asserts that the earth presents a similar spectacle to the moon, its continents dark and oceans resplendent. Gilbert also mentions the face of the Man in the Moon and provides a map of the islands of the moon³⁶. Other topics on which Gilbert expatiates in the *De mundo* include the nature of the elements, the void and weight (*gravitas*). He amplifies his view that weight is not intrinsic to heavy bodies, but a function of magnetic attraction; that objects do not fall towards the centre of the earth as to their proper place, but as to their origin³⁷. He denies the existence of an envelope of fire surrounding the earth and of the crystalline spheres. The planets are separated by void through which motion is possible and is neither hindered nor instantaneous³⁸. Gonsales' journey confirms such opinions, even if Gilbert is not mentioned by name. Indeed the journey to the moon is only possible because of the ease and speed of travel in the areas between the magnetic fields of earth and moon. Logically his return journey to the earth is shorter (nine days instead of twelve) on account of the stronger magnetic pull of the earth³⁹. Not the least feature of Gilbert's cosmology is that it denies any difference between the earth and the celestial bodies. By postulating that the laws of physics hold true for the whole universe, Gilbert has been credited with fully accomplishing the Copernican revolution⁴⁰. It goes without saying that like natural conditions should obtain there as on earth.

Most of the ideas discussed at length in the *De mundo* are stated or implied in *De magnete*, so it is possible that the details which I have given of Godwin's universe could have been constructed from that alone. However, although on most points *De mundo* differs in matters of degree only, *De magnete* contains no vivid description of the moon and invites no special interest in the moon. It does not, of course, follow that if Godwin read *De mundo* he was not familiar with *De magnete*. Indeed there is one feature of his handling of astronomical «disputes» (as Godwin calls them) which is reminiscent of Gilbert in *De magnete*: and that is the way he ridicules the hypotheses he rejects. Throughout *De magnete* VI, to a far greater extent than in *De mundo*, Gilbert dismisses such hypotheses as the works not of

³⁴ *Ibid.*, II, xiv and xviii. Cf. I, xxii, p. 65, «Luna enim sua habet circa globum effluvia materialia quemadmodum terra», and II, xix, p. 186, «Luna magnetice alligature terrae».

³⁵ *Ibid.*, pp. 173-4, 176-7.

³⁶ *Ibid.*, pp. 172 and 173.

³⁷ *Ibid.*, pp. 144, 173-4.

³⁸ *Ibid.*, I, xxii, especially pp. 70-73.

³⁹ Godwin, *op. cit.*, p. 114.

⁴⁰ Freudenthal, «Theory of Matter», p. 32.

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reason but of imagination. He describes the diurnal revolution of the sphere of the fixed stars as a fiction incomprehensible to reason and a conception of the imaginatio⁴¹. He calls the arguments of the Ptolomaic astronomers «fabula» which exceed even poetic licence — «supra omnes cogitationes, somnia, fabulas & licentias poeticas insuperabili, ineffabili, & incomprehensibili»⁴². Domingo Gonsales displays a similar tendency when he contrasts the dreams and imaginings of «Philosophers» with his own «Experience», «As for that imagination of the Philosophers, attributing heat together with moystnesse unto the ayre, I never esteemed it otherwise then a fancy»⁴³. He rejects belief in the sphere of fire, expostulating, «O Vanities, fansies Dreames»⁴⁴. In this way one set of hypotheses is dismissed as imaginary, while others are upheld in an imaginary setting. Thus in suggesting parallels between Godwin and Kepler on the one hand, and Godwin and Gilbert on the other, I do not mean that a choice should be made of one to the exclusion of the other. In view of the interchange of astronomical ideas at that time, to specify sources is a hazardous undertaking. Kepler, for example, knew and respected *De magnete*⁴⁵, and this short discussion takes no account of the possible influence of Kepler's other writings. Certainly Godwin's reservations about Copernicanism suggest an influence other than Kepler. Although *The Man in the Moone* appears to have much in common with the *Somnium* and Gilbert's writings, neither of these is helpful on the vexed question of the date of composition of Godwin's story, which was published posthumously four years after the *Somnium*, and thirteen years before *De mundo*. Both of these texts circulated in manuscript prior to publication. A manuscript of the *De mundo* was dedicated to Henry Prince of Wales (d. 1612), and it was known in manuscript to Sir Francis Bacon who criticises Gilbert's «philosophy» in *The Advancement of Learning* (1605)⁴⁶. Kepler himself reports the circulation in manuscript of the first copy of the *Somnium* when, in footnote 8, he states his belief that it had been satirised by John Donne⁴⁷.

⁴¹ *De magnete*, *op. cit.*, p. 217.

⁴² *Ibid.*

⁴³ Godwin, *op. cit.*, p. 43.

⁴⁴ *Ibid.*, p. 64. Cf. Pp. 46, 58, 65.

⁴⁵ *Somnium*, *op. cit.*, p. 131, note 134.

⁴⁶ Bacon, *The Advancement of Learning*, I,v,7. The first edition of *De mundo* used a text prepared from two codex manuscripts in the library of Sir William Boswell, which were possibly among the Bacon papers acquired by Boswell. *De mundo* was also known to Thomas Harriot. See Kelly, *The «De mundo»*, I. 16. On Bacon and Gilbert, see M. Boas, «Bacon and Gilbert», *Journal of the History of Ideas*, 12 (1951), pp. 466-7, and Kelly, «Gilbert's Influence on Bacon, a Revaluation», *Physics* 5 (1963), pp. 249-68.

⁴⁷ According to Marjorie Nicolson (*Science and Imagination*, pp. 32-4, 69-70), Kepler's writings were known in England at this time. One of his most ardent admirers was Thomas Harriot. Kepler sent a copy of his *De nova stella* to James I in 1606, and dedicated *Harmonice mundi* (1619) to him. Both John Donne and Robert Burton were familiar with his writings — Nicolson, *Science and*

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Although his belief has been shown to be erroneous⁴⁸, Kepler's mistake could only have been made if he knew the manuscript version and not the 1634 edition which includes extensive footnotes not supplied with the manuscript, footnotes which correct Kepler's interpretation of the lunar spots in accordance with Galileo's. Godwin could not have used the *Somnium* before 1611, the date given by Kepler for the circulation of the first copy. A debt to either the *Somnium* or *De mundo* would reinforce the view that *The Man in the Moone* is not to be classed among Godwin's juvenilia. Nor is it inconsistent with Grant McColley's proposal that 1615 was the *terminus a quo* for the publication of Godwin's book on the basis of Godwin's use of Nicholas Trigault, *De Christiana expeditione apud sinas suscepta ab societate Jesu* (1615). McColley's arguments for a *terminus ante quem* of 1628 are both cumbersome and unconvincing, since they do not take sufficient account of the two most obvious among the possible astronomical sources, the *Somnium* and Gilbert's writings⁴⁹. But, since it is impossible, on the evidence available, to be accurate about when Godwin might have read these, the date of composition of *The Man in the Moone* remains a matter of informed conjecture.

It might at first sight seem a rather exaggerated claim to say that Godwin was conversant with recent developments in sixteenth-century science, especially since the main evidence for this is actually a piece of science *fiction*, with no claims to be taken for true. However, paradoxical though it may sound, the importance of the parallel between *The Man in the Moone* and Kepler's *Somnium* resides precisely in the fictive: both texts use fiction to establish fact. The purpose of Kepler's *Somnium* was to make it easier for people to accept Copernicanism by overcoming the fact that the Copernican system appeared to contradict observable fact. (After all, it is obvious that the sun goes round the earth: you can see it any sunny day). However, even if you accept geocentrism, you would have to agree that, if there were inhabitants of the moon, they would see the motion of the sun differently, and indeed, for them, the earth would appear to move. That is to say, what Kepler did was to effect a shift of perspective on the earth by an imaginative leap to the moon. By this means he made it easier for his readers to recognise that the *apparent* movement of the celestial bodies does not conform literally to astronomical fact. In a less technical manner, Godwin uses the same technique. The imaginary journey to the moon becomes an opportunity to look at the earth from a different perspective. This new perspective confirms astronomical fact, namely the

Imagination, *op. cit.*, pp. 58ff; W. Appelbaum, «Donne's meeting with Kepler: a previously unknown episode», *Philological Quarterly*, 50 (1971), pp. 132-4; Burton, *Anatomy*, *op. cit.*, p. 425.

⁴⁸ *Somnium*, ed. Rosen, Appendix E.

⁴⁹ McColley over stresses the case for a Baconian influence on Godwin, ignoring Bacon's belief in a geostatic universe. And on no firmer grounds than, apparently, rather dubious stylistic ones, he asserts that Godwin is «definitely more advanced than Gilbert of *The Magnet*» («The Date of Godwin's *Domingo Gonsales*», p. 57).

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diurnal rotation of the earth on its own axis. Far from being daunted by far-fetched ideas, such as that the moon might be inhabited or that the earth is a giant magnet, he seized on them. The far-fetched character of such notions seemed perfect for fiction. Yet the fiction itself is a means of confirming the actuality of the novel speculations in which it is grounded. Both William Gilbert in *De magnet*e and Francis Godwin in *The Man in the Moone* dismiss the arguments of Ptolomaic astronomers as fantasies. In Godwin's book, one set of hypotheses is rejected as imaginary, while others are upheld in an imaginary setting. In this way, Godwin reverses fact and fiction to give his «essay of fancy» the semblance of verisimilitude, in order to shift in perspective on received cosmological notions.