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Chapter 7

Utopia and Education in the Seventeenth Century: Bacon's Salomon's House and its

Influence

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Thomas More's *Utopia* of 1516, which became the foundation-stone of modern utopian literature, is a deeply ambiguous and ironic text. Its full title, *De optimo reipublicae statu deque nova insula Utopia libellus vere aureus, nec minus salutaris quam festinus, clarissimi disertissimique viri Thomae Mori inclytæ civitatis Londinensis civis et Vicecomitis*, exemplifies *Utopia*'s tendency to open questions rather than to resolve them. The title suggests that the book will give a description 'of the best state of a commonwealth' and 'of the new island of Utopia'. It is possible to conclude that the island of Utopia is offered as a representation of the best state of a commonwealth, but also that the text presents these two things separately; More's title seems to have been intentionally formulated to leave this question unsettled. *Utopia* itself offers both a critique of social conditions and an image of an idealised society, which has often been read as More's own ideal. Scholars interested in the psychology of utopianism have argued, for example, that Utopia is More's dream-world, and even readers who note apparent flaws of Utopia often suggest that it was nonetheless a place in which More himself would have liked to have lived.¹ Later early modern utopias and utopian schemes, however, often concentrate directly not only social critique, but also on formulating the practical mechanisms necessary to improve the overall material welfare of society understood in collective terms. This chapter will examine some utopian writings from the mid-seventeenth century with a view to demonstrating that in this latter context the theme

¹ David Bleich, *Utopia: The Psychology of a Cultural Fantasy* (Ann Arbor, MI, 1970; repr. 1984), p. 22. For the latter view, see *Utopia*, trans. Paul Turner, 2nd edn (London, 2003), pp. xviii-xx.

of education, always of importance in humanist circles, took on a new significance for reformers, and came to be viewed as one of the primary means of inculcating the knowledge and skills to achieve material improvements in society.

From *Utopia* onwards, it is a convention in utopian writing that the traveller to the utopian location should express a sense of approval, satisfaction or wonderment at the new society being encountered. To Raphael Hythlodæus, with whom the character of Thomas More discourses in *Utopia*, Utopia is the ideal society, where people have ‘adopted such institutions of life as have laid the foundation of the commonwealth not only most happily, but also to last forever, as far as human prescience can forecast’.² Hythlodæus’ approval of Utopia set a pattern in utopian literature, in which the narrator of the utopian encounter recorded positive associations of the new society. This pattern was followed by Francis Bacon’s *New Atlantis* (1627), in which the narrator approves of the island of Bensalem, which he and his companions have reached after a difficult journey, and associates it with a heavenly society: ‘we were come into a land of angels, which did appear to us daily and prevent us with comforts, which we thought not of, much less expected.’³ Indeed, when the travellers first see the island, its appearance is miraculous, materializing as it does in response to their prayers for salvation.⁴ After being interviewed by a Bensalemite official, who lodges them in the Strangers’ House, the travellers are kept in quarantine for three days, and then allowed access to the wider community, with some limitations.⁵ The narrator continues to record their satisfaction with this new world, in which there are ‘right good viands [...] better

² Thomas More, *The Complete Works of Thomas More, Volume 4: Utopia*, ed. Edward Surtz and J.H. Hexter (New Haven and London, 1965), p. 245, ll. 6-9. All further references will be to this edition.

³ Francis Bacon, *New Atlantis*, in *Francis Bacon: The Major Works*, ed. Brian Vickers (Oxford and New York, 1996; revised 2002), p. 463. All further references will be to this edition.

⁴ *New Atlantis*, 457.

⁵ *New Atlantis*, 462.

than any collegiate diet I have known in Europe' and 'wonderful pleasing and refreshing drink'; comfortable lodgings; and effective medicine, so that those among the travellers who are ill improve with remarkable speed.⁶ The citizens of Bensalem appear generous and kind, displaying 'such humanity, and such a freedom and desire to take strangers as it were into their bosom'. In fact, the time the travellers spend in Bensalem is enough 'to make us forget all that was dear to us in our own countries', so that many of the group intend to ask the governor if they may remain permanently. It is no surprise, then, that the narrator is certain that 'if there be a mirror in the world worthy to hold men's eyes, it is that country'.⁷

A crucial difference between *Utopia* and *New Atlantis*, however, is that 'Morus', or the Thomas More who narrates *Utopia*, is presented as sceptical about the achievements of the seemingly ideal society. Morus is frequently shown to be opposed to the views of Hythlodæus; he believes, for example, that individuals must have the motivation of personal gain if they are to work, whereas Hythlodæus sees the removal of private property as the solution to problems of greed and selfishness.⁸ At the end of Hythlodæus' narrative, Morus states that he cannot agree with everything Hythlodæus has put forward, and that the conditions achieved in Utopia seem 'impossible that all should be well unless all men were good, a situation which I do not expect for a great many years to come!'⁹ Morus' ambivalence towards Utopia underlines the text's refusal fully to endorse Utopia as truly the 'the best state of a commonwealth'. In its earliest Latin versions, at least, *Utopia* is a

⁶ *New Atlantis*, 461, 460, 462.

⁷ *New Atlantis*, 472.

⁸ *Utopia*, 107/ 8-10; 241/ 39 - 243/ 1-2.

⁹ *Utopia*, 101/ 2-4.

deliberately enigmatic and ambiguous text.¹⁰ It seems more than possible that Thomas More the author, as well as Thomas More the narrator, may have had mixed feelings about the potential of solutions such as are adopted in *Utopia* to solve the ills of Tudor England. As David Harris Sacks has argued, however, the contexts for reading *Utopia* changed in the later sixteenth century, particularly with the text's translation into the vernacular by Ralph Robynson in 1551. With the removal of the marginal notes, introductory letters and most of the original front matter which constituted the text's 'original moorings in Erasmian humanism', Robynson began the process of transforming *Utopia*

from a book primarily challenging the intellectual conventions and answering the philosophical questions of a learned international audience, to one offering commentary on current social, economic and political ills focused mainly on England and directed to a mixed readership.¹¹

As Sacks has pointed out, the early publication history of this English translation of *Utopia* suggests that the text was seen in the later sixteenth century as a work which offered a response to social problems; new editions of *Utopia* during this period frequently coincide with periods of social unrest and economic deprivation.¹² Later utopias engaged with the notion of utopia as offering possible solutions to social problems, and so often used the narrative voice to endorse those solutions in the text itself. *New Atlantis*, although it deals mainly with the question of the ideal scientific society rather than specific social problems, adopted this latter form of narrative voice.

¹⁰ On this see Quentin Skinner, *The Foundations of Modern Political Thought*, 2 vols (Cambridge, 1978), I, 255-62, and 'Sir Thomas More's *Utopia* and the language of Renaissance humanism', in *The Languages of Political Theory in Early Modern Europe*, ed. A. Pagden (Cambridge, 1987), pp.123-57 (pp. 123-24).

¹¹ David Harris Sacks, Introduction, in *Utopia by Sir Thomas More, Translated by Ralph Robynson, 1556*, ed. David Harris Sacks (Boston, MA, 1999), p. 68.

¹² Sacks, pp. 67-8.

This endorsement from the narrator has encouraged readers of *New Atlantis* to identify Bensalem as Bacon's own ideal society.¹³ Rather than Bensalem, however, the ideal society in *New Atlantis* is surely Salomon's House. Whilst *New Atlantis* describes aspects of Bensalem and the life of its inhabitants, its primary focus is the research institute which is the 'lanthorn' of the community.¹⁴ Although the wider aspects of Bensalem are discussed – the narrator's conversation with Joabin and experience of the Feast of the Family celebrations being obvious examples – the description of Salomon's House and its workings by the Father of Salomon's House with whom the narrator converses far outweigh other aspects of Bensalem in the text, comprising roughly one-third of the work as it stands. And although the text's unfinished status has often been read (by Bacon's first editor, for example) as evidence that Bacon would have added further social details, a scheme of laws, and so on, the fact remains that the text contains more information about the workings of Salomon's House than about any other feature or social institution.¹⁵

Salomon's House is first introduced to the narrator as the 'house or college' which is 'the very eye of this kingdom'. It is reported that it was originally founded by the beneficent King Solamona, who was 'wholly bent to make his kingdom and people happy'. The narrator is told that 'amongst the excellent acts of that king' the foundation of Salomon's House 'hath

¹³ James Spedding, 'Preface to The New Atlantis', in *The Collected Works of Francis Bacon*, ed. by James Spedding, Robert Leslie Ellis and Douglas Denon Heath, 7 vols (London, 1857-9), 3:122; Frances A. Yates, *The Rosicrucian Enlightenment* (London, 1972), p. 125; Moody E. Prior, 'Bacon's Man of Science', in *Essential Articles for the Study of Francis Bacon*, ed. Brian Vickers (London, 1972), pp. 140-63 (p. 159); Harvey Wheeler, 'Francis Bacon's *New Atlantis*: The "Mould" of a Lawfinding Commonwealth', in *Francis Bacon's Legacy of Texts*, ed. William A. Sessions (New York, 1990), pp. 291-310 (p. 291).

¹⁴ *New Atlantis*, 464, 471.

¹⁵ For Rawley's view that Bacon 'thought also in this present fable to have composed a frame of Laws, or the best state or mould of a commonwealth' had he not been prevented by 'his desire of collecting the Natural History' see Vickers, *New Atlantis*, 785.

the preeminence' because it is 'the noblest foundation (as we think) that ever was upon the earth; and the lanthorn of this kingdom [...] dedicated to the study of the Works and Creatures of God'.¹⁶ That Salomon's House should be the 'lanthorn' or source of light for Bensalem is especially significant, given that 'light' is for the Bensalemites 'God's first creature', and the only commodity in which they are interested in trading.¹⁷ The long speech which the Father of Salomon's House delivers to the narrator at the close of *New Atlantis*, in which he details the practices and achievements of this wonderful institution, reads like a list of everything Bacon might wish to see manifested in his own society. The range of the achievements of Salomon's House is extraordinary, even miraculous: the researchers of this institute have learned how to improve human sight and hearing, to achieve flight, to light fires that will never go out, and imitate and control other living creatures.¹⁸ They have even developed their own 'Water of Paradise' which is not only good for the health but also prolongs human life.¹⁹ Such wonders are presented as being of benefit to society at large, and are published at intervals by the Fathers of the House, who visit 'divers principal cities of the kingdom' for the purpose.²⁰ Achievements of this institution that directly benefit society include especially nourishing food and drink, a wide variety of effective medicines, technologies that produce superior materials, such as cloth and dyes, the capacity to generate light, and so on.²¹

Salomon's House is envisaged to benefit the society which supports it, and, moreover, as an act of philanthropy, both in its institution by Salomona, and in its current leadership; the

¹⁶ *New Atlantis*, 469-71.

¹⁷ *New Atlantis*, 472.

¹⁸ *New Atlantis*, 485-86.

¹⁹ *New Atlantis*, 481.

²⁰ *New Atlantis*, 488.

²¹ *New Atlantis*, 483, 484.

Father whom the narrator encounters is described as having ‘an aspect as if he pitied men’.²² As Brian Vickers notes in his annotation to this reference, this presentation of the Father is a reminder that ‘philanthropy is the guiding force in Bacon’s conception of science.’²³ Salomon’s House represents the ultimate potential of philanthropy, in which all of society benefits from the work of a central research institute, which is in turn fully supported by the community. And Salomon’s House is an institution of considerable size. The Father mentions that its fellowship comprises thirty-six different officials: twelve Merchants of Light, three Depredators, three Mystery-men, three Pioners or Miners, three Compilers, three Dowry-men or Benefactors, three Lamps, three Inoculators, and three Interpreters of Nature. In addition to this, Salomon’s House contains ‘novices and apprentices, that the succession of the former employed men do not fail; besides a great number of servants and attendants, men and women.’²⁴ The structure of Salomon’s House is reminiscent of Bacon’s ideal as laid out in the *Advancement of Learning*, in which there is ‘a fraternity in learning and illumination’.²⁵ As an institution in which there are twenty-four home-based chief scientists, and twelve roving researchers, each with their own deputies, apprentices and team of helpers, Salomon’s House would by seventeenth-century standards have been a research institution of some size.

The presence of an institution at the centre of a description of a foreign and idealised society was a trait shared with other contemporary utopian fiction. Utopias such as Tommaso Campanella’s *La Città del Sole* or *The City of the Sun* (c. 1602, printed 1623) and Johann Valentin Andreae’s *Christianopolis* (1619) also described large institutions which were central to their respective imagined societies. In the case of *The City of the Sun*, it could be

²² *New Atlantis*, 478.

²³ Vickers, *New Atlantis*, 796, n. to 478.

²⁴ *New Atlantis*, 487.

²⁵ *Advancement of Learning*, in *Works*, 3:327.

argued that the entire city functions like a single institution, dedicated to the organisation of knowledge. The city is laid out as a replica of the solar system, and its temple, which lies exactly in its centre, is a shrine to natural knowledge: ‘Nothing rests on the altar but a huge celestial globe, upon which all the heavens are described, with a terrestrial globe beside it’.²⁶ Solarian priests are astrologers, and religious worship takes place within an astrological context.²⁷ Knowledge and learning are also central to systems of power, and it is fundamental to the Solarians’ system of government that they be ruled by the wisest man, as ‘such a person is always most able to rule’.²⁸ In the City of the Sun, systems of knowledge, politics and religion are unified, and the ideal society is achieved by fully institutionalising the city and its inhabitants.

Education is central to this city-state. All children are given into the care of teachers when they are weaned, and are initially trained in all subjects before specialising.²⁹ The emphasis is on a comprehensive education that is geared towards producing the most useful and cooperative citizens. Children start to read at the age of three, and by ten years old have come to know all the sciences pictorially, learning natural sciences from the age of seven.³⁰ Such speed and depth of learning is made possible by the Solarians’ approach to the teaching and representation of knowledge, which makes them superior to their visitors: ‘in our city the sciences may be learned with such facility, as you can see, that more may be gained here in one year than in ten or fifteen among you’.³¹ The walls of the city are covered in pictures and

²⁶ Tommaso Campanella, *La Città del Sole: Dialogo Poetico / The City of the Sun: A Poetical Dialogue*, trans. Daniel J.

Donno (Berkeley, CA, 1981), p. 31. All further references will be to this edition.

²⁷ *The City of the Sun*, 113-15.

²⁸ *The City of the Sun*, 45-47.

²⁹ *The City of the Sun*, 41-43.

³⁰ *The City of the Sun*, 41, 43.

³¹ *The City of the Sun*, 47.

symbols to facilitate learning, showing the sciences of astrology and geography, languages, natural philosophy, and so on.³² Thus the institutionalisation of life in the City of the Sun results in the whole city becoming a form of school. The Solarians' dedication to learning and research is repeatedly shown to be of great benefit to their society in ways that prefigure Salomon's House; they have discovered liquids to cure nearly all infirmities, for example, use astrology and eugenics to produce strong and healthy children, and have greater knowledge than their European counterparts.³³ Like Bensalem, the City of the Sun is presented as an idealised model of what Campanella might hope to see in the real world; as the text first appeared after a period of social unrest in Calabria with which Campanella is believed to have been involved, the City of the Sun can be read as a vision of the society the Dominican monk wished to see established.³⁴ In this vision, the centralised educational institution plays a key role.

In *Christianopolis*, too, education and knowledge are at the centre of a successful society. Here children are educated from the age of six, and from that age live in the college itself, divided into three classes.³⁵ As in *The City of the Sun*, the school replaces the family unit for the growing child and the institution is placed at the centre of both social and individual development. The narrator details the functional aspects of education, such as living arrangements, meals, and inspection, and presents a comprehensive breakdown of the

³² *The City of the Sun*, 33-35.

³³ *The City of the Sun*, 33, 35.

³⁴ For this view see Jon Snyder, 'The City of the Sun and the Poetics of the Utopian Dialogue', *Stanford Italian Review*, 5 (1985), 175-87 (177); William Eamon, 'Natural Magic and Utopia in the Cinquecento: Campanella, the Della Porta Circle, and the Revolt of Calabria', *Memorie Domenicane*, n.s. 26 (1995), 369-402 (370); Sherry Roush, *Hermes' Lyre: Italian Poetic Self-Commentary from Dante to Tommaso Campanella* (Toronto, 2002), p. 135.

³⁵ Johann Valentin Andreae, *Christianopolis*, ed. and trans. Edward H. Thompson (Dordrecht, 1999), p. 219. All further references will be to this edition.

subjects that are studied in the various lecture halls of the central college.³⁶ Not only does Andreae focus on the practical aspects of the system of education, but he sees education itself as having a social purpose, understanding children as the community's investment, and likening them to land which will offer a better crop if well-prepared.³⁷ For Andreae, 'there is never a more fortunate or profitable form of expenditure than this;' the educational institution has a vital role to play in achieving social change.³⁸ Hence *New Atlantis*, *The City of the Sun* and *Christianopolis* all reflect the focus of early modern utopian literature on the institution as the means of demonstrating or motivating change, imagining a centralised institution which the author appears to promote as beneficial to society.

More specifically, these utopias focus on the organisation of knowledge and on education as the primary functions of these central institutions. Although Bacon does not explicitly discuss the practices and functions of education in *New Atlantis*, it is clear that the fundamental purpose of Salomon's House is didactic. As the Father of this institution explains: 'the End of our Foundation is the knowledge of Causes, and secret motions of things; and the enlarging of the bounds of Human Empire, to the effecting of all things possible'.³⁹ Salomon's House functions by learning through experimentation, and its wonders are not the product of chance. As the Father states when explaining the fellows' capacity to create 'perfect creatures', such products are foreseen due to the lessons of past experience: 'neither do we do this by chance, but we know beforehand of what matter and commixture what kind of those creatures will arise'.⁴⁰ The House also functions as a college of education

³⁶ *Christianopolis*, 221-51.

³⁷ *Christianopolis*, 218.

³⁸ *Christianopolis*, 218.

³⁹ *New Atlantis*, 480.

⁴⁰ *New Atlantis*, 482.

for the ‘novices and apprentices’ who are taught the knowledge and skills of the fellows, ‘that the succession of the former employed men do not fail’, and even for Bensalem as a whole, through the series of public talks which are regularly delivered by the scientists.⁴¹ Salomon’s House thus centres on the production of an educated workforce of researchers who keep the institution working, disseminate knowledge, and maintain Bensalem’s superiority.

In placing the educational institute at the centre of the ideal society, Bacon also drew on a well-established tradition of describing idealised colleges in print as a means of promoting their establishment. The adventurer Sir Humphrey Gilbert, for example, planned an ideal educational establishment in *Queene Elizabethes Achademy* (1573), which discusses the need to set up an institution that would educate men in the social, political and practical arts, preparing them in particular for a military career.⁴² The idea of an ideal college or research institute also engaged with a much older humanist tradition which saw education as the key to social improvement. Early sixteenth-century humanists like Rudolph Agricola and Desiderius Erasmus had viewed education as a way of making the individual serviceable to the community.⁴³ In Italy and France, meanwhile, active scientific societies were being established: the Accademia dei Lincei, inspired by Giambattista Della Porta and founded around 1604, for example, and the Cabinet, founded in Paris in 1616.⁴⁴ The existence of such organisations provides an important context and explanation for the way in which Bacon opts

⁴¹ *New Atlantis*, 487, 488.

⁴² See Humphrey Gilbert, *Queene Elizabethes Achademy, A Booke of Precedence, etc.*, ed. by F. J. Furnivall (London, 1869), p. xi.

⁴³ See Anthony Grafton and Lisa Jardine, *From Humanism to the Humanities: Education and the Liberal Arts in Fifteenth- and Sixteenth-Century Europe* (London, 1986), p. 168, pp. 163-64.

⁴⁴ For more on these scientific societies see Harcourt Brown, *Scientific Organizations in Seventeenth-Century France (1620-1680)* (Baltimore, 1934; repr. New York, 1967). For the Accademia dei Lincei, see William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture* (Princeton, NJ, 1994), pp. 229-32.

to institutionalise natural knowledge in *New Atlantis*.⁴⁵ Similarly, other more educational organisations, such as Gresham College, founded in London in 1596, made it possible for Bacon to imagine an establishment in which natural philosophy was thoroughly organised and systematized. Gresham College was itself intended to be a new kind of institution, different from the older foundations of learning at Oxford and Cambridge. First described in the will of Thomas Gresham in 1575, it was planned that the College should provide public lectures, with a particular focus on subjects that would be useful to the citizens.⁴⁶ The teaching of practical branches of learning, such as astronomy, geometry, law and physics, was emphasised.⁴⁷ The existence of an establishment like Gresham College, which is recognised as having played a part in promoting and facilitating the development of natural knowledge in the seventeenth century, may have suggested to Bacon new ways and models of institutionalising learning.⁴⁸

Bacon's utopian institution thus engages with a tradition of imagining idealised colleges and similar establishments, and reflects a similar interest in the institution in contemporary utopian fiction. Also significant is Bacon's concentration on a single institution, rather than the whole of society. This focus on the institution accompanied an increased emphasis in utopian writing on the possibility of achieving social change. *New Atlantis*, whilst it is far from a blueprint for a new society, nonetheless seems to offer Salomon's House as a model for the establishment Bacon wanted to see established in his

⁴⁵ For the difference and similarity between Salomon's House and other societies see Eamon, *Science and the Secrets of Nature*, p. 290, and Steven Shapin, *The Scientific Revolution* (Chicago, 1996), p. 131.

⁴⁶ Richard Chartres and David Vermont, *A Brief History of Gresham College 1597-1997* (London, 1997), p. 3.

⁴⁷ For the history of Gresham College see Ames-Lewis, and Chartres and Vermont, pp. 3-29. For the emphasis on utility and practicality at Gresham, see Ames-Lewis, p. xv, p. xx, and Francis R. Johnson, 'Gresham College: Precursor of the Royal Society', *Journal of the History of Ideas*, 1:4 (1940), 413-38.

⁴⁸ See Ames-Lewis, p. xxi.

own country. It is evident from Bacon's other writings that he wanted to reorganise and institutionalise natural knowledge and philosophy in a manner suggestive both of Salomon's House and the Royal Society. As has been well documented, much of Bacon's writing was geared towards establishing a new organisational structure of natural philosophy.⁴⁹ In the *Advancement of Learning* (1605), he had placed great importance on the institutional framework, the 'foundations and buildings, endowments with revenues, endowments with franchises and privileges, institutions and ordinances for government' necessary for progress, and it is just such an institutional framework that is imagined in *New Atlantis*.⁵⁰ The Father's description of Salomon's House makes frequent references to the superiority of the Bensalemites' learning compared to that of the travellers; Salomon's House, for example, possesses fossils and minerals 'which you have not', and even musical harmonies which are 'sweeter than any you have'.⁵¹ The Father explicitly tells the narrator to publish what has been communicated to him 'for the good of other nations', suggesting that the achievements of Salomon's House can be held up as an example of what a properly funded research institute can achieve for society at large.⁵² Bacon places the research institution at the centre of his ideal society in order to demonstrate that the proper organisation of knowledge is central to the improvement of human society; his portrait of Salomon's House demonstrates the potential benefits that he believed a well organised and fully supported research institute would bring.

⁴⁹ John E. Leary, Jr., *Francis Bacon and the Politics of Science* (Ames, IA, 1994), pp. 247-48; Rose-Mary Sargent, 'Bacon as an advocate for cooperative scientific research', in *The Cambridge Companion to Bacon*, ed. by Markku Peltonen (Cambridge, 1996), pp. 146-71 (p. 146).

⁵⁰ *Advancement of Learning*, in *Works*, 3:323.

⁵¹ *New Atlantis*, 484, 485.

⁵² *New Atlantis*, 488.

Such an institute was not achieved in Bacon's own time, and we have to look forward to the foundation of the Royal Society in 1660 for a comparable organisation. Indeed, Bacon's work and the portrayal of Salomon's House in *New Atlantis* are often seen as important influences on the foundation of that Society.⁵³ It is also possible, however, to trace Bacon's influence not only in the production of an actual institution like the Royal Society, but in the development of utopian schemes for other research and educational establishments that arose in the middle years of the seventeenth century. The development of such schemes demonstrates how ideas which originated in utopian literature (in this case, the ideal educational and research institutions of Bacon, Campanella and Andreae) were seized upon by social reformers as potential models for real-life institutions and methods of social improvement. The utopia may have had its roots in fiction, but it provided an important source of inspiration for practical schemes put forward by the likes of Samuel Hartlib and his collaborators, which were intended to be carried out in the immediate future. These writers largely chose not to use the utopian form when suggesting ways in which social change should occur, but their imagined ideal institutions are direct descendants of Salomon's House. Bacon's *New Atlantis* was written at a time when the achievement of a real-life Salomon's House was not feasible, but the work of the Hartlib circle demonstrates their conviction that their idealised institutions could and should be achieved immediately. Despite this conviction, these institutions, like those pictured in the utopias of Bacon and others, remained imaginary.

⁵³ See for example Brian Vickers, *Francis Bacon and Renaissance Prose* (Cambridge, 1968), p. 49; Paolo Rossi, *Francis Bacon: From Magic to Science*, trans. Sacha Rabinovitch (London, 1968), p. xiii; Antonia McLean, *Humanism and the Rise of Science in Tudor England* (London, 1972), p. 233. For more on the connection between Salomon's House and the Royal Society see Michael Hunter, *Science and Society in Restoration England* (Cambridge, 1981), Chapters One and Two, and *Establishing the New Science: The Experience of the Early Royal Society* (Woodbridge, 1989), p. 6. For Bacon's wider influence on the foundation of the Royal Society, see Hunter, *Establishing the New Science*, Introduction.

Bacon's work in general, and Salomon's House in particular, have long been recognised as having influenced the schemes of Hartlib, 'the Great Intelligencer of Europe', and his circle of associates, which included the Scottish preacher John Dury, the economist and philosopher William Petty, and the Czech pedagogue Jan Amos Comenius.⁵⁴ For Hartlib, the realisation of the Baconian advancement of learning was vital for the 'true and fundamentall Reformation' of the state.⁵⁵ Like Bacon, Hartlib believed that the reorganisation of human knowledge could result in a return to an Adamic dominion over nature. Furthermore, his efforts to create a system of correspondence between like-minded reformers across Europe constituted an attempt to realise Bacon's 'Noble and Generous Fraternity' producing 'correspondence by mutual intelligence'.⁵⁶ Hartlib's endeavours to promote education and the organisation of knowledge owed a considerable amount to Bacon, and one of his projects in the 1640s was the attempt to find funding for the establishment of an institution along the lines of Salomon's House.⁵⁷ Hartlib's 'Office of Address' was conceived as a state-sponsored institutional network which would serve a variety of functions, including those of 'patent office, employment agency, commodities exchange, spiritual counselling

⁵⁴ Charles Webster (ed.), *Samuel Hartlib and the Advancement of Learning* (Cambridge, 1970), p. 2.

⁵⁵ Samuel Hartlib, *Englands Thankfulness, or, An Humble Remembrance presented to the Committee fir Religion in the High Court of Parliament* (London, 1642), p. 9.

⁵⁶ Francis Bacon, *De dignitate at augmentis scientiarum* (1623), in *Works*, 1:491, quoted in Webster, *Samuel Hartlib and the Advancement of Learning*, p. 3.

⁵⁷ For the Baconianism of Hartlib and the Hartlib circle, see Hugh Trevor-Roper in 'Three Foreigners: The Philosophers of the Puritan Revolution', in *Religion, the Reformation and Social Change*, 3rd edn (London, 1984), pp. 237-293 (p. 250, p. 258); Charles Webster, *The Great Instauration. Science, Medicine and Reform 1626-1660* (London, 1975), pp. 97-99, p. 113, p. 514, and *Samuel Hartlib and the Advancement of Learning*, p. 69, p. 70; Stephen Clucas, 'In Search of "The True Logick": methodological eclecticism among the "Baconian reformers"', in *Samuel Hartlib and Universal Reformation: Studies in Intellectual Communication*, ed. Mark Greengrass, Michael Leslie, and Timothy Raylor (Cambridge, 1994), pp. 51-74 (pp. 51-2); Stephen Pumfrey, "'These 2 hundred years not the like published as Gellibrand has done de Magnete": the Hartlib circle and magnetic philosophy', in *Samuel Hartlib and Universal Reformation*, pp. 247-67 (p. 260).

centre and public library.’⁵⁸ The Office was intended as a means of institutionalising the activity already undertaken by Hartlib as a correspondent with a wide network of contacts across Europe, functioning as a point of communication for many correspondents or a ‘communications center for the collection and dissemination of information of all sorts’, just as Salomon’s House relied upon a system of travelling spies to provide information of foreign systems of knowledge.⁵⁹ Also referred to as the ‘the Agency for Universal Learning’ or the ‘College’ in Hartlib’s correspondence, it shared aims with Salomon’s House, including playing a role in realising Bacon’s plans for the advancement of learning.⁶⁰

Hartlib later wrote the preface to another text which promoted the establishment of an ideal institute of learning and information, John Dury’s *The Reformed School*, which was printed in 1650. In this pamphlet Dury laid out his plans for a boarding school for approximately fifty or sixty boys, who would attend from around the age of eight for eleven years. He discussed the practical arrangements for the school in considerable detail, describing the building, equipment and staffing needs, as well as a regimented timetable, with no hour left unoccupied. Dury’s is a deeply practical scheme, but, like Bacon, he saw the achievement of such a scheme as crucial to the spiritual development of humanity. The structure of the daily programme, the particulars of the curriculum and the organisation of the schoolhouse all have a role to play in ‘the building up of the Citie of God in our generation’, which is the ultimate task of the reformed school.⁶¹ Other schemes produced by the Hartlib

⁵⁸ Kevin Dunn, ‘Milton among the monopolists: *Areopagitica*, intellectual property and the Hartlib circle’, in *Samuel Hartlib and Universal Reformation*, pp. 177-192 (pp. 179-80).

⁵⁹ Betty Jo Teeter Dobbs, *The Foundations of Newton’s Alchemy, or “The Hunting of the Greene Lyon”* (Cambridge, 1975), p. 62.

⁶⁰ Dunn, ‘Milton among the monopolists’, p. 180; David Norbrook, *Writing the English Republic: Poetry, Rhetoric and Politics, 1627-1660* (Cambridge, 1999), p. 122.

⁶¹ John Dury, *The Supplement to the Reformed School* (London, 1650), p. 11.

circle involved idealised foundations which were intended to institutionalise knowledge and promote learning and communication. Hartlib was also involved with the production of *A Description of the Famous Kingdome of Macaria. Shewing its Excellent Government*, a utopian tract written by Gabriel Plattes and printed in 1641. In *Macaria*, the ‘College of Experience’ fulfils the role of the Office of Adresse, and the imaginary society is run by an improved version of the English Parliament, founded on a centralised system of education and local services. Plattes loosely retains the utopian form, presenting his ideal society in the form of a dialogue between a ‘Traveller’ and a ‘Schollar’, who discuss the former’s encounter with Macaria in terms that make plain the author’s desire that his fictional society should form a model for real life: ‘if any experience which I have learned in my long travels, may stand them [Parliament] in stead, I would willingly impart it for the publick good.’⁶² However, most conventions of the utopian form are dispensed with, making the text little more than ‘a thinly veiled statement of the social and economic policies of experts advising the parliamentary party.’⁶³ *Macaria* is a utopian text in that it presents an idealised society as a means of promoting the imagined institutions of that society, a feature it shares with other aspirational texts produced by the Hartlib circle that seek to achieve the advancement of learning and the organisation of knowledge.

In such schemes, then, Hartlib and his colleagues were directly influenced by the Baconian ideal, manifested in Salomon’s House.⁶⁴ In his correspondence, Hartlib specifically refers to Salomon’s House when describing the kinds of institutions he wishes to see created.

⁶² Gabriel Plattes, *A Description of the Famous Kingdome of Macaria; Shewing its Excellent Government* (London, 1641), p. 2.

⁶³ Charles Webster, *Utopian Planning and the Puritan Revolution: Gabriel Plattes, Samuel Hartlib, and Macaria* (Oxford, 1979), p. 23.

⁶⁴ For this view, see for example Donald R. Dickson, *The Tessera of Antilia: Utopian Brotherhoods and Secret Societies in the Early Seventeenth Century* (Leiden, 1998), p. 169.

In undated notes contained within the Hartlib Papers, Hartlib comments under the title ‘Londons Vniversity’: ‘Arca Noa and House of Salomon or a Library of Representations’.⁶⁵ Elsewhere he suggests for the projected University in London ‘One of the Houses or Colledges as *Verulam* for breeding of states men for Politicks vide *Verulam*’. Hartlib’s associate William Petty also turned naturally to Bacon when imagining ideal institutions as a means of advancing learning. Petty directly described his projected social reforms as the continuation of the schemes of Bacon, ‘the great Lord *Verulam*’. Before the ‘great Work’ of the advancement of learning can continue, however, Petty calls for the creation of ‘the Institution of an Office of common Adresse according to the projection of Master *Hartlib* (that painfull and great instrument of this Designe)’.⁶⁶ The institution resulting from this groundwork is described in terms reminiscent of that ubiquitous model for the reform of knowledge, Salomon’s House. Petty desires the creation of a ‘Gymnasium Mechanicum or a Colledge of Trades-men’ in which representatives of every trade might be brought together. The description of this institution is worth quoting at length, in order to demonstrate the breadth of its conception. It is to be:

a Nosecomium Academicum according to the most exact and perfect Idea thereof a compleate *Theatrum Botanicum*, stalls and Cages for all strange Beastes and Birds, with Ponds and Conservatories for all exotick Fishes, here all Animalls capable thereof should be made fit for some kind of labour and imployment, thaa [sic] they may as well be of use living as dead; here should be a Repositorie of all kind of Rarities Naturall and Artificiall pieces of Antiquity, Modells of all great and noble Engines, with Designes and Platformes of Gardens and Buildings. The most

⁶⁵ Undated Note on London University, HP 47/9/38A.

⁶⁶ William Petty, *The Advice of W.P. to Mr. Samuel Hartlib for The Advancement of some particular Parts of Learning* (London, 1647), p. 1.

Artificiall Fountaines and Water-works, a Library of Select Bookes, an Astronomicall Observatory for celestiall Bodies and Meteor, large pieces of Ground for severall Experiments of Agriculture, Galleries of the rarest Paintings and Satues [sic], with the fairest Globes and GeographiCALL Maps of the best descriptions, and so farre as is possible, we would have this place to be the Epitome or Abstract of the whole world.⁶⁷

The influence of Salomon's House in this catalogue of contents and achievements is evident.

Comenius, who collaborated closely with Hartlib, shared the Hartlibians' Baconian agenda. Hugh Trevor-Roper's study of the 'Three Foreigners' (Hartlib, Comenius and Dury) has established Bacon as an important, even the most important, influence on this group, and Bacon was clearly a central figure in the development of Comenius' own ideas.⁶⁸ When he lost his library to fire in 1656, as John T. Young has noted, the Czech pedagogue mentioned Bacon as one of the writers whose works he particularly needed to replace.⁶⁹ Comenius frequently referred to the inspiration he drew from the 'great Lord Verulam'; writing to Hartlib before his visit to England in 1641, he argued vehemently that the time was ripe to put Bacon's plans into action. His pansophic schemes sought to organise and systematize human learning in ways that reflect his absorption of Bacon's ideals. Although as Young has shown, Comenius was by no means exclusively influenced by Bacon, and 'there are elements in the pansophic programme that are not so much misunderstandings of Bacon's views as

⁶⁷ *The Advice of W.P. to Mr. Samuel Hartlib*, p. 8.

⁶⁸ For the links between Comenius' thinking, pansophia and Bacon, see Rossi, *Logic and the Art of Memory*, p. 130, p. 133.

⁶⁹ John T. Young, *Faith, Medical Alchemy and Natural Philosophy: Johann Moriaen, Reformed Intelligencer, and the Hartlib Circle* (Aldershot, 1998), pp. 102-3.

conscious adaptation of or even reaction against them', Bacon remains an important influence on Comenius' ideas for universal education and the organisation of knowledge.⁷⁰

Comenius' writings demonstrate the extent of his interest in the subjects of education and institutional reform.⁷¹ His 'pansophia' was ultimately a utopian plan to institutionalise knowledge and learning. Himself a language teacher and an organizer of schools, Comenius had a practical interest in the organisation of learning and deeply held convictions about the potential of education; texts like the *Magna Didactica* (1632) show his efforts to demonstrate how education and knowledge could be better organised. In his opinion, a man's whole life, including the role he could play in society, depended on his childhood education.⁷² In Comenius' view didactic principles were revolutionary, 'capable of changing by slow degrees the aspect of civilisation'.⁷³ Fundamental to this was his belief that education had an important spiritual purpose and the capacity to help humanity improve itself. Although he saw the whole of society as ultimately educational, the ideal educational institution had an important role to play in Comenius's thinking. He acknowledged that there have not yet been any perfect schools, but argued that this did not mean that such institutions cannot exist.⁷⁴ Reform of the current situation depends on the establishment of a system based on order, the principle that holds together the fabric of the world.⁷⁵ Such a perfect system, Comenius argued, will function like clockwork:

⁷⁰ Young, *Faith, Medical Alchemy and Natural Philosophy*, p. 106.

⁷¹ Comenius's later works, such as the *Magna Didactica* (Czech, 1632; Latin, 1657) and the *Via Lucis* (1668) for example, detailed the work that should be undertaken at the various levels of schooling, the amount of time that should be devoted to study, and other such practicalities of the ideal educational system.

⁷² *The Great Didactic of John Amos Comenius*, trans. M. W. Keatinge, 2 vols (London, 1910), 2:75; *J. A. Comenii: Magna Didactica*, ed. Fridericus Carolus Hultgren (Lipsiae, 1894), pp. 66-7.

⁷³ *The Great Didactic*, Introduction, 1.13.

⁷⁴ *The Great Didactic*, 2:76, *Magna Didactica*, p. 67.

⁷⁵ *The Great Didactic*, 2:93, *Magna Didactica*, p. 80.

It will be as pleasant to see education carried out on my plan as to look at an automatic machine of this kind, and the process will be as free from failure as are these mechanical contrivances, when skilfully made. [...] Let us therefore endeavour, in the name of the Almighty, to organise schools in such a way that in these points they may bear the greatest resemblance to a clock.⁷⁶

In his plans for educational reform, Comenius has in mind an idealised system of institutions through which knowledge may be organised and disseminated in a mechanical fashion. In *Way of Light*, composed during a visit to England in the early 1640s, Comenius laid out his plans for universal schools and books, a common language, and a pansophic college, which would bring together the work of many different scholars.⁷⁷ Like other reformers connected to Hartlib, he imagined idealised institutions in order to promote the wider aims of his pansophic aims.

In terms of tracing Bacon's influence on the Hartlib circle, their common use of the imaginary and ideal institution as a means of promoting human improvement is as important as more general shared interests and ideas. The method of producing a fictional and idealised institute as a means of modelling the potential of the organisation of knowledge and learning to improve society was inherited by the Hartlibians from Bacon and other authors of utopias. Like Bacon, Hartlib, Dury, Petty and Comenius wished to see the achievement of the institutions they imagined, and they described these institutions in print in order to help realise them. In doing so they adopted a central characteristic of utopian fiction, which is that to write about the ideal society is to help promote its achievement. Thus the Hartlib circle are

⁷⁶ *The Great Didactic*, 2:97, in Latin: 'Nec minus expedite procedent omnia, quam expedite horologium pondere suo recte libratum procedit. Tamque suaviter et jucunde, quam suavis est et jucunda automati ejusmodi speculatio. Tanta denique certitudine, quanta ullum tale artificiosum instrumentum haberi potest', *Magna Didactica*, p. 83.

⁷⁷ *The Way of Light*, trans. E. T. Campagnac (Liverpool, 1938).

not only linked to Bacon through their desire to promote the advancement of learning in accordance with his agenda, but also in the way in which they described and sought to promote that agenda, that is, by publishing accounts of imaginary and idealised institutions that would reform education and the organisation of knowledge.

The promotion of the ideal institution took on a particular importance in the mid-seventeenth century due to the millenarian fervour that developed during this period. Hartlib's *A Further Discoverie of the Office of Adresse* demonstrates his conviction, shared with Dury and others, that Christ's reign on earth was imminent: 'wee believe that his Kingdome will be set up & that all such as are faithfull unto him for the Advancement thereof; shall bee accepted'. Before this could happen, however, Hartlib argued that earthly reforms must be completed:

Wee expect also, that before this Kingdome of His Mediatorship between God and the Elect bee ended, & given up unto the Father; the Restitution of all this shall be wrought in the Churches & by the Church in the World & therefore wee desire to sow our seed upon all waters, whiles wee have opportunity.⁷⁸

The fact that the last days of the world were looming meant that politics no longer needed to be thought of as a repetitive cycle, but in terms of permanent historical change.⁷⁹ In Hartlib's eyes, however, the coming of Christ's rule did not obviate the need for reformers to be active in their mission: 'because wee judge the time to be neere at hand', Hartlib wrote, 'Wee prepare ourselves; wee trimme our lampes, wee are willing to goe forth & desirous to meet the bridegroom, that wee may by our attendance upon him with our lightes in our handes;

⁷⁸ Hartlib, *A Further Discoverie of the Office of Adresse* (1647), Hartlib Papers (hereafter HP), 47/10/2B.

⁷⁹ David Wootton, 'Leveller democracy and the Puritan Revolution', in *The Cambridge History of Political Thought 1450-1700*, ed. J. H. Burns and Mark Goldie (Cambridge, 1991; repr. 2004), pp. 412-42 (p. 422).

increase the manifestation of his Glorie'.⁸⁰ For Hartlib, human attempts at reform can only be understood as taking place within the scope of divine providence, and it is a duty, as the time of Christ's rule approaches, for such efforts to be made. John Dury expressed a similar sentiment in a letter to Hartlib written in 1636: 'The Lord direct vs and assist vs. Let us bee busy whiles wee haue time. The dayes are evil therefore the time must bee the more redeemed.'⁸¹ These writings reflect the Hartlibians' conviction that they were working at a special time, and were operating within the control of God's desires. This assurance that they had an important role to play in hastening the millennium is reflected elsewhere in Hartlib's works:

The onely ground of all Our Standing and prosperity is this, even Our Publike Interest in Christs Universall and Communicative Kingdom; [...] by this Interest we are bound to raise Our Resolutions to some Duties of a larger extent then those are, which the solemn League and Covenant doth require of Us. [...] the whole Happiness and the Glory of this State will depend upon the Wisdome and the piety of this great Duty.⁸²

The expression of such sentiments, descriptions of projected utopian societies and the desire for social reform led to what has been described as a 'utopian mentality', in which the revival of learning 'was seen as thoroughly consistent with the envisaged utopian paradise and indeed capable of providing the means whereby the utopian conditions would be realised'.⁸³

⁸⁰ Hartlib, *A Further Discoverie of the Office of Adresse*, HP 50H, 47/10/2B – 47/10/3A.

⁸¹ Letter from John Dury to Samuel Hartlib (1636), HP 9/1/35A.

⁸² Samuel Hartlib, *Considerations Tending To the Happy Accomplishment of Englands Reformation in Church and State* (London, 1647), p. 10.

⁸³ Webster, *The Great Instauration*, p.1.

Apocalyptic beliefs thus created a cycle of optimism and reform, in which utopian thinking became not only possible but necessary in order to imagine the scale of the change that would occur. For Hartlib and his colleagues, utopian ideas came to have a practical application, and the utopian institution no longer needed to be described within the fictional conventions of utopia, but as a real and potential prospect for achievement. One result of Bacon's influence on the Hartlib circle was that an institution which he could only describe within the confines of utopia began to be described outside of the utopian form. For the Hartlibians, the conventions of the journey, the foreign location, the narrative voice, and the action taking place at a distance, which were an integral part of the fictional utopia, were not useful; rather, they wished to imagine the ideal society as a real and achievable prospect. Hence, as the ideal society seemed a more realistic objective, travel became less important to utopian writing. In the years which were to follow, when the millennium failed to appear and reformers such as Hartlib underwent a period of disillusionment, the utopia would again emerge as a way of imagining an idealised society at a distance. But for a brief period in the middle of the seventeenth century, utopia seemed to be in prospect, and utopian ideas and institutions were seized on by reformers who genuinely believed they could be made real. The conventional approval of the utopian society on the part of the narrator had become the wholehearted endorsement of the utopian institution on the part of the author, and utopia played an important role in the practical schemes of social reformers, for whom education seemed to hold the key to the prospect of achieving the 'best state of a commonwealth'.