

'FOR MY NAME AND MEMORY'
The legacy of Francis Bacon

A paper read before
The St Albans and Hertfordshire Architectural and Archaeological Society
on Friday 30th October 2009 by Michael Cooper, President

'For my name and memory, I leave it to men's charitable speeches,
and to foreign nations, and the next ages'

Preamble

On Tuesday 15th October 1862 The Reverend Richard Gee read his paper on Francis Bacon to this Society. He began by saying that members are

Archaeological as well as Architectural and that some things fairly c[o]me under our cognizance as Historical Antiquarians, which [are] not expressly connected with buildings or builders.¹

The Reverend Gee asked the Society to extend its interests. Now, 147 years later, I must ask for the same because I too have nothing to say about architecture, or archaeology.

The epigraph is taken from Bacon's will.² You can decide whether this talk is 'charitable' or not. There is however no doubt that I am speaking in one of the 'next ages'. Bacon's 'name and memory' have become much better known in 'foreign nations' than here in St Albans, the place where he was educated as a child and to which he returned at the end of a turbulent life. In retirement he designed and built a house to live in and a garden for pleasure.

Sir Francis Bacon (1561-1626), later Baron Verulam of Verulam³ and Viscount St Alban⁴ wanted to change the way mankind tried to understand the natural world. An unshakeable confidence in his own intellect and a formidable tenacity of thought enabled him to achieve his ambition. Its roots lay in his formative years at Gorhambury where Anne, his devout and scholarly mother, engaged tutors for him and for his elder brother Anthony. They were taught the standard grammar school curriculum in the puritan tradition, with a solid grounding in the classics.⁵ Soon after his twelfth birthday Bacon entered Trinity College, Cambridge.⁶

I shall say nothing tonight about his career as lawyer, politician and statesman, a career which took him to the highest appointment in the land and ended with a hefty fine and brief imprisonment in the Tower. Instead I want to try to explain his philosophy, why he wrote it and how it changed our understanding of the natural world. Bacon's philosophy was part of the northern European humanism of Erasmus and More, but it is complex, difficult, unfinished and widely studied. Scholars of many disciplines (marxism, feminism, materialism, atheism, capitalism, communism, industrialism and many others, including Rosicrucianism, hermeticism and Shakespearean attributism) find much in Bacon to write about and build a career upon. Bacon is truly 'A Man For All -Isms'.

In the time available tonight however, I can do no more than use a broad brush to illustrate his philosophy. This approach will obscure its intricate and wide-ranging arguments and neglect many of the thousands of academic papers that his works have

generated throughout nearly four centuries. I hope nobody here will be dismayed.

Before Bacon

I think it would be helpful to say a few words about what philosophers before Bacon had to say about the natural world. Like many other thinkers in the European 'Enlightenment' Bacon did not recognize the important contributions to science in the middle ages by Moslem and Christian scholars. He wrote that they had 'rather wore down the Sciences with their numerous treatises, than increased their weight'.⁷ This viewpoint was common in the west until about 50 years ago.⁸

By about AD 1000, Moslem scholars had translated almost all known Greek texts into Arabic. Christian monastic scholars then translated the Arabic texts into Latin. Gerbert of Aurillac (ca. 945-1003, who became Pope Sylvester II) was the first to translate substantial Arabic mathematical and astronomical texts into Latin. Throughout the next few centuries Latin translations of Arabic versions of Greek texts flooded into western Europe. Aristotle's philosophy became once again the basis of western man's rational attempts to understand the natural world. His description of the nature of things was the starting point for deductions about the causes of everyday phenomena, but reasoning based on observation often conflicted with religious doctrine. St Thomas Aquinas (1225-74) wrote more than eight million words in his lifetime, many of them in his attempts to reconcile the philosophies of Aristotle and St Augustine. Where reason did not conflict with religion, it was pursued with tangible results. Richard of Wallingford (1291? - 1336) became famous throughout Europe for building here in our Abbey a clock-driven mechanism for calculating and displaying astronomical data, but that is another story. I must return to Francis Bacon and Aristotle's philosophy.

Replacing Aristotle (382-324 BC)

Aristotle observed that smoke rises. His explanation was that smoke has an affinity with fire which has a tendency to rise. Similarly he said a stone falls because it has an affinity with the earth which lies below. Starting from statements such as these, Aristotle used logic to make deductions about natural phenomena. The most common logical device in Aristotelian philosophy is the syllogism, for example: 'all stones fall, all flints are stones, so all flints fall'. That logical argument ends with a truth (if the first and second statements are true) but the conclusion adds nothing of practical value to our understanding of stones, or flints, or falling. It was this failure of Aristotle's philosophy to generate any useful knowledge that Bacon found unacceptable. According to his chaplain William Rawley, when Bacon was a teenager at Cambridge he

first fell into the dislike of the philosophy of Aristotle; not for the worthlessness of the author, but for the unfruitfulness of the way [method]; being a philosophy (as his lordship used to say) only strong for disputations and contentions, but barren of the production of works for the benefit of the life of man.⁹

Bacon later said that although Aristotle's deductive method is logical, it is concerned with language, not with things, so 'it lets nature slip through its fingers'.

Bacon was convinced that Aristotle's philosophy could not lead to any useful knowledge of the astonishing new world that was being revealed by explorations out of

Europe since the fifteenth century. Nature's abundance and variety were evident in the precious metals, rocks, shells, plants, animals, birds, fish and even people, never seen before in Europe, that were brought back across the oceans. A glittering prospect of material prosperity and well-being came into view. But Nature was also mysterious, unpredictable and dangerous. Bacon believed that to make use of the earth's abundance for the general good, mankind would need a much better understanding of nature than could be obtained by Aristotle's method, so he decided to replace it with a new natural philosophy and a programme of action to accompany it.

The most important of his scientific works he called *Instauratio magna*, or 'great renewal', which was never completed. In the Preface Bacon gave advice to his readers:

... that they consider what are the true ends of knowledge, and that they seek it not either for pleasure of the mind, or for contention, or for superiority to others, or for profit, or fame, or power, or for any of these inferior things; but for the benefit and use of life; and that they perfect and govern it in charity. For it was from lust of power that the angels fell, from lust of knowledge that man fell; but of charity there can be no excess, neither did angel or man ever come in danger by it.¹⁰



Figure 1

Those words have inspired scientists for almost 400 years, but have not always been heeded.

The frontispiece of *Instauratio magna* (Figure 1) illustrates Bacon's philosophical intent. He lets everyone know that it is written by a man of some importance: Francis of Verulam, Lord Chancellor of England. A contemporary three-masted ship has just sailed between twin columns into an ocean. The columns could be taken to represent the mythical pillars of Hercules, with the ship sailing westwards from Europe through the straits of Gibraltar to a new world beyond the ocean. Just below the horizon a ship is returning home laden with a valuable cargo of trophies. But Bacon intended the pillars also to represent a gateway from a landlocked sea of impotent knowledge into an ocean of useful understanding of nature and man's rightful command over it. The motto is taken from the Book of Daniel 12:14: *multi pertransibunt & augebitur scientia* (many shall pass to and fro, and science shall be increased).

Bacon intended his philosophy to be 'not an opinion to be held, but a work to be done'.¹¹

In the second part of *Instauratio magna*, Bacon set out his new method which he named *Novum Organon*. Aristotle had used the word 'organon' for his method of increasing knowledge, so Bacon was making it clear that he was challenging Aristotle. Scholars are still arguing over the details of Bacon's new method: was it 'new' ?; was it a 'method ?'; and 'was it Bacon's ?').

The first part of *Novum Organon* is a guide to science for anyone who wants to understand what scientists are trying to do. In place of Aristotle's deductive method Bacon placed induction at the centre of his new method. Observations of particular natural phenomena, using instruments when necessary, are made and recorded as a 'natural history' by people working together in an organised group. By rational analysis and free discussion of the natural history and by performing new experiments to add to the history, general explanations of the phenomena are gradually arrived at. Aristotle's method of deduction begins with definitions and ends with conclusions justified by logic. Bacon's method of induction begins with observations and ends with generalisations, or laws, supported by experience and reason. Bacon said that induction is the more demanding of the two methods because it is 'drawn not just from the recesses of the mind but from the very innards of nature.'

Bacon said that the conclusions, or laws, arising from the inductive method should be accepted with caution because imperfections in human senses and reason make observations and induction liable to error. It is also possible for new observations or measurements to make a law no longer tenable. In such cases, the law should be modified to take into account the new evidence as well as the old. Progress in natural knowledge, a consequence of Bacon's philosophy, was a new and powerful concept, alien to the mediaeval mind. The idea of progress has been so successful in science that progress in society by similar means has been tacitly assumed to be possible. The results so far are not encouraging.

Working in Solomon's House

Bacon was not content with proposing a new inductive method for science, he also described how scientists should organise their work. In a fable called *New Atlantis*,¹² Bacon tells how he sailed from Peru to Japan and China. The prevailing easterly wind however changed to a strong south westerly

... so that finding our selves in the Midst of the greatest Wilderness of waters in the world, without Victuall, we gave our Selves for lost Men, and prepared for death. Yet we did lift up our Hearts and Voices to GOD above, who sheweth his Wonders in the Deep; Beseeching him of his Mercy, that as in the Beginning He discovered the Face of the Deep, and brought forth Drie-land: So he would now discover Land to us, that we might not perish ... [I]n the Dawning of the next Day, we [saw] a Land Flat to our sight, and full of Boscage ... And after an Hour and a halfes Sayling, we entered into a good Haven, being the Port of a fair City. Not great indeed, but well built, and that gave a pleasant view from the Sea.¹³

Bacon gave the name 'New Atlantis' to the country where he landed (somewhere on the west coast of north America). The citizens in Bacon's fable welcomed the visitors, cured

those who were sick, supplied them all with the finest clothes, food and wine and housed them in rooms fitted with luxuriously embroidered materials and well-crafted furniture.

Bacon said that the citizens of New Atlantis lived so agreeably because of the work that went on in a College

instituted for the Interpreting of Nature, and the producing of Great and Marvellous Works, for the Benefit of Men; Under the Name of Salomons House.¹⁴

It seems to me that Bacon's New Atlantis has been realised as the University of California and Silicon Valley. One of the 'Fathers' of Solomon's house told Bacon what the college was for and how it worked:

First, I will set forth unto you the End of our Foundation. Secondly, the Preparations and Instruments we have for our Works. Thirdly, the [se]veral Employments and Functions whereto our Fellows are assigned. And fourthly the Ordinances and Rites which we observe.

The end of our Foundation is the Knowledge of Causes, and Secret Motions of things; and the Enlarging of the bounds of Humane Empire, to the Effecting of all Things possible.¹⁵

Bacon continues his fable by recalling a detailed account by one of the 'Fathers' of how the fellows of the College investigate various natural phenomena such as heat and cold, wind, air, fish, fowl, plants, serpents and animals, streams, rivers, lakes and seas, materials of all kinds, lights and colours, using instruments for making measurements not only on the ground but at sea, on the tops of mountains and in deep wells. Groups of fellows travel to foreign countries, others perform mechanical experiments, or tabulate results, or make written records, or propose explanations of phenomena, or predict plagues, earthquakes, comets, inundations and other disasters. All activities are subjected to rational argument and debate by the fellows, which in turn lead on to new experiments, observations and measurements. In this way, natural knowledge is increased. Bacon concludes his fable as follows:

And when [one of the 'Fathers'] had said this, He stood up: And I, as I had been taught, kneeled down: and he laid his Right Hand upon my Head, and said; GOD bless thee my Son, and GOD bless this Relation, which I have made. I give thee leave to Publish it, for the good of other Nations; For we hear [sic] are in GODS Bosoms, a Land unknown. And so he left me; Having assigned a value of about two Thousand Duckets, for a Bounty to me and my Fellows. For they give great Largesses, where they come, upon all occasions.¹⁶

Real Solomon's houses

Bacon's fable of Solomon's house was the inspiration for the creation of institutions for natural philosophy. During the English civil war, one group of men met at Gresham College, London, and another group met at Wadham College, Oxford. Their purpose was to follow Bacon's inductive method in a Solomon's house. After the restoration, the two groups came together at Gresham College where, in 1660, they formed The Royal Society, the world's first scientific institution. The king was its patron

and the members called themselves 'fellows' after the inhabitants of Solomon's house. In 1666 the Académie Royale des Sciences was founded in Paris by Louis XIV as another realisation of Bacon's Solomon's house. Oxford's Old Ashmolean Building, completed in 1683, was intended to house the collection of Elias Ashmole and to be the University's Solomon's House, but with teaching as an additional activity. Since then, nearly every nation in the world has formed and operates its scientific institution according to Baconian principles.

The first fellows of the Royal Society came from a wide variety of occupations: courtier, politician, gentleman, divine, lawyer, physician, scholar, merchant, tradesman, civil servant and writer.¹⁷ Only a few years earlier they had been on opposing sides in the civil war, but divided loyalties and political differences were set aside as irrelevant to their collective endeavours to practice Bacon's new experimental natural philosophy. Regular fortnightly meetings took place at Gresham College¹⁸ when records were kept not only of the fellows' experiments and debates, but also of other scientific work that they had seen in their travels in Britain and overseas, or that had been described in letters to the Society. Science was independent of political allegiance and nationality.

Bacon's rejection of mediaeval scholasticism based on Aristotle's writings is seen in the Royal Society's motto *nullius in verba* (a colloquial translation is 'take nobody's word for it'). Further clear evidence of Baconian inspiration in the Royal Society can be found in early publications by the fellows. Robert Hooke (1635-1703), the world's first professional scientist,¹⁹ published in 1665 a literally wonderful book *Micrographia*. In the preface he refers to Bacon variously as: 'one of the wisest of our Statesmen, the Lord Verulam'; 'the thrice Noble and Learned Verulam'; 'our thrice excellent Verulam'; and so on. This is not mere sycophancy. Hooke also frequently cites 'the great Verulam' in his manuscript diaries and in reports of his experiments to the Royal Society. Many Baconian ideas can be found in Hooke's preface to *Micrographia*, such as:

The truth is, the Science of Nature has been already too long made only a work of the Brain and the Fancy: It is now high time that it should return to the plainness and soundness of Observations on material and obvious things.²⁰

... all the uncertainty, and mistakes of humane actions, proceed either from the narrowness and wandring of our Senses, from the slipperiness or delusion of our Memory, from the confinement or rashness of our Understanding, so that 'tis no wonder, that our power over natural causes and effects is so slowly improv[...].d, seeing we are not only to contend with the obscurity and difficulty of the things whereon we work and think, but even the forces of our own minds conspire to betray us.²¹

Hooke went on to write that imperfections of the human mind and senses could be partially rectified by using instruments designed for observation and measurement. Some of his earliest experiments were on gravitational attraction. When he took his experimental apparatus to the top of old St Paul's, to the roof of Westminster Abbey and into deep wells at Durdans near Epsom he was making use of Bacon's idea in *The New Atlantis* that observations should be made not only on the ground, but high above and deep below it.

When the fourth son of the Earl of Cork, the chemist Robert Boyle, one of the formative members of the Royal Society was challenged to justify some properties of air

that he had published, he did so by invoking one of Bacon's important concepts: the *experimentum crucis*, or crucial experiment:

... and such an Experimentum Crucis (to speak with our Illustrious Bacon) is afforded us by the noble Observation of Monsieur Paschall²²

Boyle published the measurements he and Hooke made during the experiment and invited his critics to refute them by carrying out their own experiments. It was sufficient justification. The experiments pointed to the truth of Boyle's conclusions. Hooke's Law and Boyle's Law are still in use today.²³ Samuel Johnson said of his life's work:

I shall not think my employment useless or ignoble, if, by my assistance, foreign nations, and distant ages, gain access to the propagators of knowledge, and understand the teachers of truth; if my labours afford light to the repositories of science, and add celebrity to Bacon, to Hooker, to Milton, and to Boyle.²⁴

Another important Baconian influence on the work of early scientists was a recognition of the ever-present possibility of error (a possibility ignored by some who promote too aggressively the value of science). Hooke wrote:

Wherever [the reader] finds that I have ventur'd at any small Conjectures, at the causes of the things that I have observed, I beseech him to look upon them only as doubtful Problems, and uncertain gheses, and not as unquestionable Conclusions, or matters of unconfutable Science.²⁵



Figure 2

Science and Christian religion

The fellows of the Royal Society were criticised by Platonists as well as by supporters of scholasticism and Aristotelian science. They were also accused of being atheistical. Thomas Sprat, a fellow of the Royal Society and Bishop of Rochester rebutted these accusations when he published the first history of the Society only seven years after its formation.²⁶

The frontispiece (Figure 2) was designed by John Evelyn (also a fellow) and engraved by Wenceslaus Hollar. It shows the president of the Royal Society Lord Brouncker seated on the left, a bust of the Society's patron Charles II in the centre, and the Society's inspiration Francis Bacon seated on the right. To the left of Brouncker the mace lies on a

covered wooden table upon which experiments and demonstrations were performed at the society's fortnightly meetings. (The mace and the table could be seen until recently in the foyer of the Royal Society's headquarters in Carlton House Terrace, but now only the mace is on show.) Bacon is pointing out the apparatus and instruments used in experiments.

Sprat begins his book with a eulogy 'To The Royal Society' which in many places acknowledges Bacon's influence, such here in Stanza V:

Bacon, like Moses, led us forth at last,
The barren Wilderness he past,
Did on the very Border stand
Of the blest promis'd Land,
And from the Mountains Top of his Exalted Wit,
Saw it himself, and shew'd us it.²⁷

Bishop Sprat, whose prose is better than his verse, also countered allegations that The Royal Society's activities were atheistical:

So true is that saying of my Lord Bacon, That by a little knowledge of Nature men become Atheists; but a great deal returns them back again to a sound and Religious mind. In brief, if we rightly apprehend the matter, it will be found, that it is not only sottishness, but prophaness, for men to cry out against the understanding of Nature: For that being nothing else but the instrument of God, whereby he gives being and action to things; the knowledge of it deserves so little to be esteem'd impious, that it ought rather to be reckon'd as Divine.²⁸

Many people today think that religion and science are incompatible. The broadcast media have been known to arrange for a fervent scientist and a passionate believer in religious doctrine to meet and argue, usually to no good effect. Agreeing that science and religion are compatible is less exciting. Bacon and many of his followers in the 17th century thought that religion and science were not only compatible, but complementary:

... if anyone complains that the sciences and arts have been corruptly given over to vice, extravagance and the like, ... let the human race only be given the chance to regain its God-given authority over nature, then indeed will right reason and true religion govern the way we exert it.²⁹

Not all scientists have found it easy to reconcile natural philosophy with religion. Robert Boyle, the 17th-century Baconian and Christian gentleman agonised between religious teaching and the world revealed by natural philosophy.³⁰ Two centuries later, Charles Darwin thought that:

... by collecting all facts which bore in any way on the variation of animals and plants under domestication and nature some light might be thrown on the whole subject. My first notebook was opened in July 1837. I worked on true Baconian principles, and without any theory collected facts on a wholesale scale ...³¹

but those Baconian principles led to a conflict between Darwin's rational conclusions about natural selection and his beloved wife's strong faith in Christian doctrine. The mental strain that he suffered as a result brought him many years of ill-health.

Response in St Albans to Bacon's philosophy

The first citizen of St Albans to leave a record of what he thought about Bacon's philosophy was the prescient Welshman John Jones, assistant master at St Albans School in the 1680s.³² Jones praised Bacon in a Latin poem published at his own expense in 1683.³³ Here is an extract, translated into English prose:

Not far hence stands Gorhambury in sunny fields, not so proud of its mass as it is of thee, Bacon, who would be a great lord if my poetry had any power. You shall be talked of among the Garamantes³⁴ of Libya, and the people of Java and of India. The southern constellation of the Ship³⁵ shall bear you to the stars of heaven; O sacred interpreter of things and Priest of Themis,³⁶ from whom the new experimental method of the age has taken its beginning.³⁷

Jones was right to say that Bacon and his 'new experimental method of the age' would be talked about in remote parts of the world, but I think he would have been surprised and saddened to find that the sentiments behind his ambitious poetry find no civic resonance in today's St Albans.

I have looked through the Transactions of this Society and found only a handful of papers about Bacon.³⁸ They deal mainly with his life, the buildings at Gorhambury and St Michael's Church. None of them says anything of interest about his writings. Why have historians of St Albans had so little to say about Bacon's philosophy? Perhaps the explanation is that he was not born here, but in London,³⁹ yet he chose the names 'Alban' and 'Verulam' for his titles. Gorhambury was the place where he spent his childhood in the family home. If London was Bacon's workplace, his emotional and intellectual home was the manor of Gorhambury. His mind was nurtured there in childhood domesticity and it was the place where later in life, free from the burden of office, he created the buildings and gardens that gave him great pleasure. Perhaps historians of St Albans have not written about Bacon's philosophy because it was too difficult a topic, or because it was thought to be irrelevant to the "St Albans and Hertfordshire Architectural and Archaeological Society".

Conclusion

Bacon's continuing importance is evident in the publication by The Clarendon Press, Oxford of a new critical 15-volume edition of his works (*The Oxford Francis Bacon*). Nine of these volumes will cover his philosophical writings.⁴⁰

Bacon's ideas, put into practice, have transformed the mediaeval world into our own. So many things that we now take for granted, products of science, technology and manufacturing, are also products of Bacon's philosophy. Bacon thought that God had given man reason to enable him to understand the natural world. Bacon advocated state funding of experimental philosophy because the new understanding of nature would bring great benefits to mankind. If the consequences have not turned out to be universally beneficial, that's our fault, not his.

Across the cities of western Europe we see memorials to scientists such as Copernicus, Tycho Brahé, Kepler, Newton, Einstein, Dirac and many more, but it was Bacon's ideas about how science should be organized 'for the production of works for the benefit of the life of man' that have had such a profound effect on our lives. Two statues to Bacon are in Gray's Inn, but these are not civic statues. The absence of a civic memorial in St Albans to such an influential thinker is surprising and long overdue. The sub-title of this talk could well be 'A Regrettable Case of Civic Memory Failure'.

Various 'visions' of a future St Albans have been whirring around the internet recently. I have a vision of a Baconian memorial in the centre of our city. It consists of a garden (Bacon made gardens at Gorhambury and at Gray's Inn); it has a water feature (Bacon made a water garden at Gorhambury and the first Baconians made ingenious use of hydraulics to surprise and delight the unwary at Wadham College); and it has an unorthodox memorial to Bacon, similar to Einstein's in his home town of Ulm, but less grotesque, and in a more attractive setting.

The year 2026 is the 400th anniversary of Bacon's death. It is now time for St Albans to accept Bacon's legacy to us of his 'name and memory'.

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NOTES

1. Gee 1863 p. 1, with the tense of two words altered.
2. Cited by Vickers 1992, p. 497.
3. Created on 12 July 1618 (Jardine & Stewart 1998 p.421).
4. Created on 28 January 1622, a week after his 60th birthday, with the King and Prince Charles in attendance (Jardine & Stewart 1998 p. 442).
5. The boys were later joined by Anne (the wife of their step-brother Nathaniel) who was the illegitimate daughter of Sir Thomas Gresham.
6. Peltonen 2007.
7. Bacon 2004, p. 125.
8. Lindberg (1992) among others has discussed why and how our view of mediaeval science has changed in the last 50 years or so. Hannam (2009) presents a more recent and enthusiastic discussion of 'how the mediaeval world laid the foundations of modern science'.
9. Rawley 1657.
10. Farrington 1951, p. 88.
11. Ibid, p. 89.
12. Bacon 1658
13. Ibid, pp. 1-2.
14. Ibid, f. A2 preface by William Rawley.
15. Ibid, p. 26.
16. Ibid, p. 34.
17. Hunter 1994 p. 126.
18. Gresham College was founded in 1597 by the will of Sir Thomas Gresham, merchant and creator of the Royal Exchange. It is still in existence: see www.gresham.ac.uk
19. The word 'scientist' is a 19th-century invention; in the 17th century an experimental scientist like Hooke was referred to as an experimental natural philosopher, i.e. someone who sought truth about the natural world by carrying out experiments.
20. Hooke 1665, fol. b(i).
21. Ibid, fol. a(iv).
22. Boyle 1662, p. 48.
23. Although somewhat modified to make them more generally applicable.
24. Johnson 2009
25. Ibid, fol. b.(i).

26. Sprat 1667.
27. Sprat 1667.
28. Ibid, p. 351.
29. Bacon (2004), p. 197. By 'arts' Bacon means technology (artifacts).
30. Hunter 2009.
31. From Darwin's 1892 autobiography, cited by Henry 2002, p. 2.
32. A memorial tablet to John Jones is located on the wall of the nave north aisle (O'Keeffe nd item 10).
33. Jones 1683. A copy can be found in the Lewis Evans Collection, formerly held in St Albans City Library, but now in the Hertfordshire Archives and Local Studies at Hertford.
34. An ancient civilization in the Sahara.
35. Probably the constellation Vela (sails).
36. The Greek goddess of justice.
37. From a typescript translation by Patrick O'Keeffe in the Hudson Memorial Library, St Albans Abbey
38. Gee 1863, Wigram 1924, Lane 1932, and Rogers 1933. Details of Bacon's philosophy might have been discussed in Society lectures and papers, but until the archive catalogue is complete, it is impossible to be sure.
39. He was born at York House in the Strand (close to where Charing Cross Station now stands) which his father Nicholas Bacon occupied in his role of lord keeper. Bacon later lived there as lord keeper and at Gray's Inn.
40. The titles of the volumes (with dates of publication so far in brackets) are: I. *Early Writings to 1596*; II. *Late Elizabethan Writings, 1597–1602*; III. *Earlier Jacobean Writings, 1603–1613*; IV. *The Advancement of Learning* (2000); V *Early Philosophical Writings to c.1611*; VI. *Philosophical Studies c.1611–c.1619* (1996); VII. *Political and Legal Writings, 1613–1626*; VIII. *The Historie of the Raigne of King Henry the Seventh and other works of the 1620s*; IX. *The Instauration magna, Part I: De augmentis scientiarum, Books I–IV*; X. *The Instauration magna, Part I: De augmentis scientiarum, books V–IX*; XI. *The Instauration magna, Part II: Novum organum and Associated Texts* (2004); XII. *The Instauration magna, Part III: Historia Naturalis and Historia Vitæ* (2007); XIII *The Instauration magna: Last Writings* (2000); XIV. *Sylva Sylvarum and New Atlantis*; and XV. *Essayes and Counsels* (2000).