Robert Balle, Merchant of Leghorn and Fellow of the Royal Society (ca. 1640-ca. 1734)
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ROBERT BALLE, MERCHANT OF LEGHORN AND FELLOW OF THE ROYAL SOCIETY (*CA.* 1640–*CA.* 1734)

by

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SUMMARY

The reasons why one English merchant, Robert Balle, should have wished to join The Royal Society in 1708 and become thereafter an active member of it are discussed in this paper. The author has used the Journal and Minute Books of The Royal Society, the correspondence of Sir Hans Sloane and other contemporary materials, published and unpublished. She concludes that the factors involved in Balle's decision included family connections, genuine interest in some of the subjects with which the Society was concerned and a belief in the need for the free exchange of ideas. They co-existed with Balle's wish to utilize membership of the Society to further his social and commercial ends and his use of scientific patronage for the enhancement of self-esteem and personal prestige. It is hoped that this study will contribute to the discussion on merchant membership of, and activity within, the early Royal Society.

INTRODUCTION

Robert Balle worked as a merchant in Leghorn in Italy from 1662 until 1698, when he returned to England to continue trading in London. He was elected a Fellow of The Royal Society in 1708. In his *History of the Royal Society* of 1667,[1] Thomas Sprat wrote of the help given to the Society by merchants:

> They have contributed their labours: they have help'd their correspondence, they have employ'd their factors abroad, to answer their inquiries, they have laid out in all countries for observations: they have bestowed many considerable gifts on their Treasury and Repository.

Rather than being an accurate account of mercantile contributions to the early Royal Society, Sprat's account has been seen by some modern commentators primarily as part of a propaganda exercise to emphasize the utilitarian and hence, arguably, the socially beneficent aspects of The Royal Society.[2] If Sprat hoped also to encourage mercantile support, the exercise had little success. Merchants did not join the Society in the numbers for which Sprat may have hoped. Michael Hunter's analysis of the

Fellowship during the period 1660–1700 showed that only 7% of its members were merchants or tradesmen as compared with, for example, 15% of gentlemen of independent means, or 30% classed as aristocrats, courtiers and politicians. Hunter also shows, however, that those merchants and tradesmen who did join the Society, showed higher activity levels and hence more interest in its affairs than did any of those larger groups.[3] Hunter suggests that merchants 'were less likely to join for superficial reasons than was the case with men of more exalted status' because of their 'disincentives' such as a shortage of time or disinclination 'for sustained scientific pursuits'.[4]

Robert Balle's career provides some new perspectives on Professor Hunter's thesis and suggests reasons why one individual merchant might wish to join the Society. In his case, these included family connections, a real interest in some of the subjects which were the Society's concern and a shared conviction of the need for the free exchange of ideas. These elements were given sharper focus by his experiences as a merchant overseas, by his observations both of the physical world and of the political and religious obstacles to its free discussion. Also significant was his position as a single man, returned from abroad and anxious to pursue the commercial and social opportunities which the gentlemen's club aspect of The Royal Society could provide. The Society also provided a particular opportunity for patronage, indeed the special characteristics delineated in Sprat's picture of a merchant Fellow are those of a patron, contributing time, money and contacts to the Society, rather than expertise in natural philosophy. Balle not only acted as a patron to the Society collectively, he also served two other Fellows in that capacity: Thomas Savery and, in particular, Richard Bradley, whose work as a botanist and horticulturalist he encouraged both within and outside the Society. All these elements combined to bring Balle into the Fellowship and to make him its active and enthusiastic supporter even after his return to Italy in 1721.

Robert Balle was one of the 15 surviving children of Sir Peter Balle, Attorney General to Queen Henrietta Maria and owner of an estate at Mamhead in Devon. Although a successful barrister until the Civil War, Sir Peter never recovered from its effects either financially or in terms of his career.[5] His sons had to find paid occupations. Two became barristers, another a physician. The remaining five were sent as merchants overseas. Of the eight sons, only William, the eldest, married. Robert arrived in Leghorn in 1662 and by 1669 had become a partner in the firm of Thomas Death and Ephraim Skinner, the first of several with which he was to be concerned.[6] On his return to London in 1698, he continued to act as a merchant, initially at least, in partnership with a nephew, Thomas Balle, who remained behind in Leghorn.[7] Robert was evidently, at this stage, reasonably successful in business. In 1683, he was the major shareholder (at *ca.* £4940) in the firm of Balle, Gosfright and Arthur, the next year helping two of his other merchant brothers pay off a debt of £1000 on their family estate at Mamhead.[8] Described as 'rich' by another London merchant in 1704, he spent £2550 in 1710 on buying Campden House, a large house with over 16 acres of grounds at Kensington, London.[9]

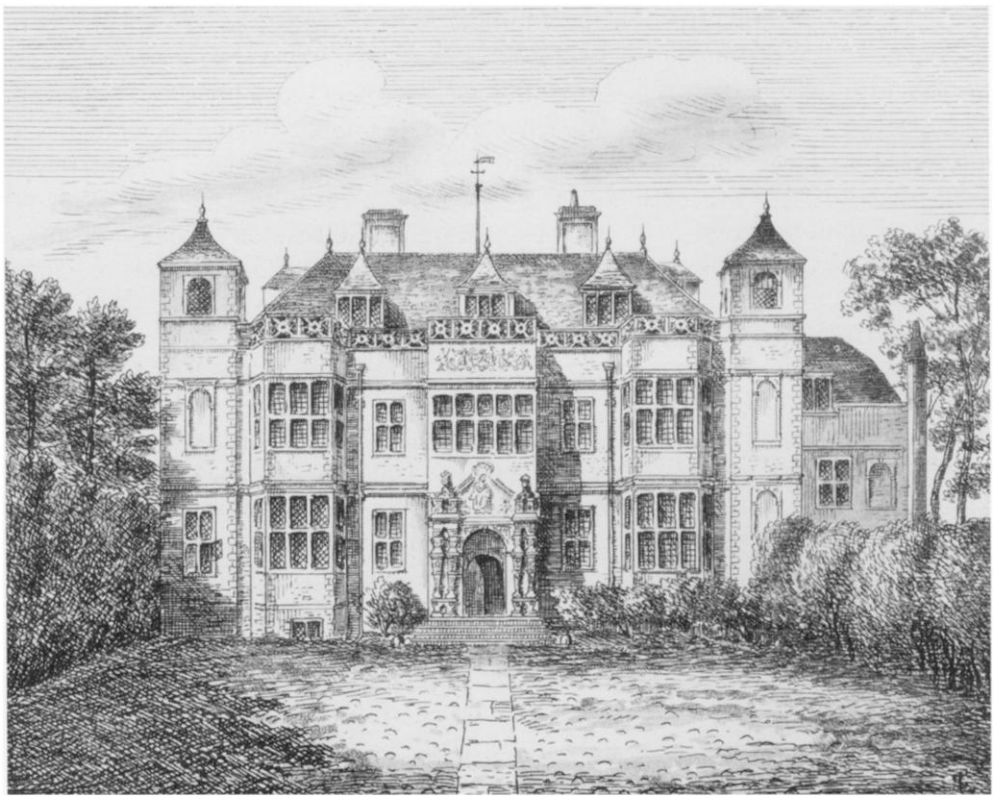

Figure 1. Campden House. From D. Lysons, *The Environs of London* (1795) BL 990 1 3. By permission of the British Library.

Fellowship of The Royal Society

Robert had by now an assured position in society, with diverse qualifications, including birth and financial standing, which could make him an acceptable candidate for The Royal Society. Merchants overseas were frequently used by influential persons for help with their art collections or finances when travelling abroad. They also supplied the government in London with diplomatic and military intelligence. In this way, Robert had acquired a network of correspondents who included Sir John Finch, Lord Chandos and the Earls of Shrewsbury and Nottingham.[10] He was socially acceptable, being MP for Ashburton, Devon, between 1708 and 1710, and described in official lists as 'Esquire'.[11] He had already, as we shall see, supplied evidence to the Society of his habit of close observation. Unsurprisingly, therefore, he was proposed as a Fellow on 5 May 1708, elected on 30 November that year and admitted on 7 May 1709. He was elected to the Council in November 1710 and, with the exception of the year 1711–12, served on it annually until his return to Italy in 1721.[12] Robert's attendance record at Council meetings was creditable: he was present at around 68% of the meetings he could have attended. His record for the years 1713–17 was nearer 84%, by comparison,

for example, with that of 68% for Sir Hans Sloane (Secretary, 1693–1712).[13] In addition, he served as auditor of the Society's accounts from 1710–11 and 1712–13. In May 1711, he contributed £50 towards the purchase of the houses in Crane Court, Fleet Street, which were to be the Society's new headquarters, also donating, at various times, books on astronomy, an Italian mathematical manuscript and various items for the Repository varying from a lodestone from Dartmoor to a specimen of cochineal from Carolina.[14] His less-tangible contributions to the Society included translating an Italian letter and serving as one of the 'Visitors' nominated by the Society who, in May 1714, reported to the Board of Ordnance on the state of the equipment at the Royal Observatory, Greenwich.[15]

Robert's trading base, Leghorn, was a free port, dealing not just with goods from the Mediterranean litoral, but with regions as far afield as Newfoundland and Archangel. His firm dealt in English minerals and fish, East Indian pepper and Spanish American cochineal, but Robert was also knowledgeable about Baltic products as well as those from the Mediterranean.[16] Presumably because of this background, in February 1713, he was made chairman of the Society committee which made recommendations on enquiries to be instigated by Queen Anne's diplomatic envoys when posted to Russia. The subjects to be covered included matters of natural history as well as latitude, eclipses, metals and minerals, when the seas on the northern coasts froze and the aurora borealis. The committee's work was subsequently extended to cover Sicily, on trade with which Balle was at the time advising the government.[17] Balle spoke at Society meetings on varied subjects, including, for example, Russian leather, the infection *in utero* of a fetus with smallpox and the incidence of apoplexy under the Great Dome in Florence.[18] He discussed the likelihood that at one time England and France had formed a conjoined land mass and exhibited material from the inner bark of the lime tree, suggesting its potential for manufacture.[19]

Balle's nominations and recommendations to the Society were mainly of those who shared his interests in plants and horticulture. These included Richard Bradley in 1712 and, later, Dr Antoine Jussieu of the Royal Botanic Garden in Paris and William Sherard. Robert also nominated two other Englishmen: Roger Gale, an antiquary, and Samuel Sanders, of whom little more is known, and an Italian, Sr A. Salvino of Florence, a Greek scholar, who was elected in 1716.[20]

Balle's continuing support for the Society seems to have received some recognition in that the minutes of a meeting held on 6 February 1718 note: 'Mr. Balle, Vice President in the Chair'.[21] After his return from Paris in 1719, he was once more active in Council. Perhaps as the result of the South Sea Bubble, financial disaster then struck. In March 1721, he was declared bankrupt and, in the words of his principal creditor Jacob Cliffe:

> fled from this kingdom to Leghorn, and being never like to return again [Cliffe] sued him to an outlawry.

In a letter from Leghorn, Balle told Sloane: 'My endeavours now are to forget and be forgotten'.[22] He continued to write occasional letters to Sloane (the last in October

1728) expressing his continuing interest in and concern for The Royal Society, and telling him that although he had seen 'many extraordinary things' on his journey back to Leghorn, they appeared 'insipid' when he thought back to the days at Crane Court.[23] There is no doubt that Balle greatly valued his Fellowship, but why had he wanted to join the Society in the first place?

It is clear that he had no illusions about his own scientific capabilities or academic attainments. In 1694, he described himself as 'a wellwisher to the mathematics', 'since I can be no other'.[24] In 1721, he told the Florentine virtuosi that he was an 'illeteral' [sic] man, and declined their invitations to join their Society, saying that he was 'incapable to produce any fine flower'.[25] While Balle had evidently had no formal higher education, his family background was sympathetic to learning. Sir Peter Balle was a renowned antiquarian and a legal historian. Balle's letters to Sloane indicate an acquired familiarity with the world of art galleries, libraries and scholars such as Dr Antonio Latini who showed Balle 'the beginning he had made … of translating Milton's *Paradise Lost* into Italian', or Signor Bianchi, who 'is about printing the ancient Tuscan inscription that is on the [?] lappet of an ancient Etruscan statue'.[26] When Balle wrote about the causes of plague (*ca.* 1717), he referred at some length to the work of Diodorus Siculus, the classical author who had described an outbreak in Athens. Balle had come to admire learning and felt his own lack of it. It may be suggested that one of the attractions of The Royal Society to him was what he perceived as its educational role. As he told the Italians:

> Keeping company with the learned, especially with those of the Royal Society, taught all to be in some degree learned, like learning a language by conversation.[27]

For Balle, the Society could supply a deficiency he perceived in himself.

Robert Balle's links with the Society, moreover, went back to its earliest days. His brother William, a barrister by profession but an astronomer by inclination, attended meetings at Gresham College in the late 1650s and was present on 28 November 1660 when the Society was first established. William's chambers at the Middle Temple were initially the intended location of its meetings during vacations and he became the Society's first Treasurer and its Curator of Magnetics. He gave it £100 and was actively involved in its affairs until his marriage and retirement to run the family estates in 1668.[28] William's younger brother Peter, a physician and celebrated graduate of the University of Padua, was elected FRS in 1663. He was an active member of Council in 1665, 1666 and 1667, being re-elected in 1669, although his interest appears to have declined thereafter.[29] In 1664, Peter was asked by the Society to consult his brother [Robert], then in Leghorn, about certain pieces of rock. In 1665, Robert's account of the Livornese method of preserving snow and ice was published in the Society's *Philosophical Transactions*.[30] Two years previously, Sir Peter Balle had drafted a bill for John Evelyn F.R.S., incorporating his scheme for cleaning up the polluted air of London. In 1688, Robert supplied Evelyn with tree seeds and information about arboriculture in the area around Leghorn.[31] Both Sir Peter and William Balle were friends of Samuel Pepys (F.R.S. 1665 and President 1684–86).[32] In 1701, Robert's brother Charles, formerly a merchant in Sicily and by then in London, acted as an agent

between a Sicilian F.R.S., Domenico Bettoni, and Hans Sloane over the publication of Bettoni's books.[33] After his return to England in 1698, Robert was also in touch with Sloane who, in January 1703, passed on to the Society some of Robert's comments on a particular form of lace made in Italy from aloe fibre.[34] For Robert, like others in his family, the Society had formed a constant background to life.

Moreover, despite its declining reputation in England by the end of the century, this was not a view of the Society shared abroad, as Robert well knew. In 1694, he wrote to an acquaintance of his, Dr John Covell, with an account of a recent meeting he had had 'at Florence, in our Duke's wardrobe', with various scholars including 'the famous Leibnitz'. There the general view was that 'all learning is retired' to England, Leibnitz saying that 'Mr. Newton' was one of 'the two learnedest men now upon Earth' (the other being Christiaan Huygens). Robert added that it rejoiced his heart that while the glory of Britain's martial exploits was great, this had 'come far short of having got us that eternal renown by arms, that we have got … by letters'.[35] To be part of a Fellowship which included men like Huygens and Newton would be likely to bring him kudos abroad. This judgement he was to find amply fulfilled when in France in 1718, and later in Italy. He narrated to Sloane 'the kind of rapture' Antoine de Jussieu was in at the news of his own election to the Society, and of the 'profoundest respect' with which the Parisian regarded the Society, a respect which Robert was to experience again on his return to Italy in 1721:

> 'tis hardly to be believed, what a high esteem all, where I have passed, have for the Royal Society and the universal knowledge and learning of the Britons.[36]

There was, of course, one particular Fellow, Isaac Newton, to whom all Robert's European acquaintance held in veneration, a veneration shared by Robert. His donation of £50 for the project to move the Society to a new London base at Crane Court, supported an action instigated by Newton, although disapproved of by at least a minority of Fellows.[37] Virtually every letter Robert wrote to Sloane from abroad concludes with a wish to be remembered to Newton. He clearly enjoyed being involved in finding a portrait of Newton sufficiently like him to be approved for the Duke of Tuscany's 'celebrated collection of Great Men'. Robert could bathe in reflected glory.[38]

As Robert would have been aware after his return to England, although the Society had suffered mixed fortunes and a varied domestic reputation since its earliest years, courtiers, Crown officials and senior luminaries of the legal world still belonged to it.[39] It was therefore an avenue to useful contacts.

Robert was a shrewd man of business with a reputation among some in the London business community for an avariciousness which had allegedly bordered on the dishonest, at least in his dealings with his brother Giles, a merchant who worked in Genoa. Robert was joint executor with Giles of their wealthy brother Charles's will and he was said to have acted to prevent Giles from fulfilling this position and so benefiting from the will.[40] He was also later alleged by his nephew Thomas to have claimed ownership of various statues valued at £600 supplied to the Privy Gardens at Hampton Court, but which were also said to have belonged to Giles.[41] Whether or

not these allegations were true, it is clear that Robert had enemies. These included Sir Leoline Blackwell, a wealthy and influential diplomat involved in Livornese affairs from 1690 to 1705. In 1700, Blackwell described Robert to William Blathwayt (secretary at war and a commissioner of trade) as 'a turbulent sort of man, that never speaks well of anyone behind their backs, but fawns to their faces'.[42] In view of his long residence in Leghorn, it was not surprising that Robert had interests and sympathies which were not shared by other merchants or government officials who were London-oriented in their concerns or circles of friends. Sir Alexander Rigby was one such influential merchant involved in a legal case which rumbled on from 1696 for 20 years. Robert had earlier opposed Blackwell's activities in the affair and in 1716 supported Rigby's opponent, the Grand Duke of Tuscany, at a London hearing of the case. Those doing so were said to have been 'frowned upon' in official circles.[43] Such official disfavour or favour could affect the way bills were paid or contracts or licences to trade granted. In 1711, Robert may have hoped that since Newton's remit as Master of the Mint included such matters, he might cast a favourable eye on Robert's bid for the purchase of tin from the Mint for delivery to his factor at Leghorn.[44] He was unsuccessful on this occasion, but a letter he wrote to Newton in May 1716 demonstrates that he had achieved some success in cultivating his contacts within The Royal Society—perhaps to a sufficient degree to withstand hostility elsewhere. The letter was apparently consequent on a request to Newton from the Society that he and other Fellows to be chosen by him, should wait on the King or the Prince of Wales to obtain their signatures to the Society's statutes. Robert wrote:

> Having been yesterday with my Lord Parker [Lord Chief Justice and F.R.S.] I acquainted him how you had resolved to wait on his Majesty, at which he was much pleased, saying he would willingly accompany us, enjoining me to acquaint you therewith. I shall attend to hear when the time is fixed, and where to meet.[45]

The establishment of a network of potentially useful contacts was, of course, only one aspect of the Society's attractions. As we have seen, even before Robert's return to England, he had demonstrated to John Evelyn a practical interest in arboriculture. It seems likely that his wish to join The Royal Society was at the very least encouraged by his interest in plant life. He became one of the wide circle of natural historians, botanists and garden enthusiasts which included Hans Sloane and James Petiver F.R.S., who practised as an apothecary. This coterie had been in existence since the 1690s but with a variable membership and diverse meeting places.[46] In 1714, these evidently included The Royal Society itself and Robert's protégé, Richard Bradley, was one of the group.[47] In a letter from Petiver to Bradley, then on a tour of Dutch botanic gardens, Petiver thanked Bradley for his letter from Holland and described how he:

> had communicated it immediately to your lady who both [sic] congratulated your safe arrival on the other side of the herring pond, as does our worthy friend Mr. Ball, to whom I read it yesterday in the Royal Society and gave also the perusal of it to Dr. Sloane who with smiles salutes you.

Petiver added that they all smiled at other details in Bradley's letter.[48]

Botany

Evidence for Robert's claim to share in some at least of the over-riding interests of men like Petiver, Bradley and Sloane is summed up in a printed list of Fellows of The Royal Society of 1718, where he is described as one of those 'most proper and able' to be consulted on 'Husbandry, gardening and planting'.[49] His interests had three particular manifestations: in arboriculture, in the cultivation of his own garden at Campden House, and in botanic gardens and the promotion of international exchange between them. These will be discussed below. More generally, as we shall see, he retained the observant eye which, in 1665, had noted the Livornese method of dealing with ice and snow and around 1717 turned it on the causes of disease.

If such considerations help to explain Robert's wish to join the Society, we can also find reasons why he became so active and enthusiastic a Fellow. Robert had returned to London after prolonged absence abroad, an unmarried man with no obvious focus for a social life. The warmth of Robert's feelings towards the Society revealed in his letters to Sloane from Italy when he could no longer derive any practical benefit from his Fellowship, suggest that more important to him than narrow considerations of self-interest were the genuine friendships based on shared pursuits which he had found within it. The letter from Petiver to Bradley, quoted above, is an example of this. The friendship which existed between Robert Balle and Sloane is witnessed in Robert's letters to Sloane from France and Italy as, in particular, is Sloane's kindness and concern for Robert in medical matters in which he continued to act as a doubtless unpaid adviser.[50]

As well as friendships, his contacts at the Society also gave Robert the opportunity of acting as a patron, valuable not only as a means of promoting his self-esteem, but also publicising his achievements and opinions to a wider public. The role of client was filled by Richard Bradley, towards whom Robert acted as patron and friend from at least November 1712, when he nominated Bradley as F.R.S., until his own return to Italy.[51] Bradley was a prolific writer on botany and horticulture whose professional reputation today is high. A recent Director of the University Botanic Garden at Cambridge, S.M. Walters quoted with approval the judgement that, when viewed from an historical standpoint, Bradley must be seen as 'one of the outstanding British plant-biologists'.[52] Bradley's early life is obscure, but in June 1710, he had shown to The Royal Society a treatise he was preparing on succulent plants, receiving its encouragement. By 1714, when he visited Holland, collecting and illustrating plants and seeds in its botanic gardens, he already had his own large repository of plants at Kensington. He was at various times client to Mary, Duchess of Beaufort, and to Sir Hans Sloane. His letters suggest that he was also client and friend, rather than an employee, of Robert Balle, but he certainly had a close knowledge of the plants and was said by a contemporary to 'manage' at least the grapevines in Robert's garden at Campden House.[53] In 1718, Bradley referred to the 'many observations and experiments' he had made there.[54]

For some years Robert acted as Bradley's principal point of contact with the Society. In December 1714, he delivered in a letter from Bradley in Amsterdam on

the structure and sexuality of catkins, and the following month some of a letter from Bradley to Robert was read to the Society on the part played by 'farina generans' (pollen) in tree and plant life. In March 1715, Robert, acting on Bradley's expressed wish, proposed Frederick Ruysch and Levinus Vincent as Fellows. He also then presented the Society with a further paper by Bradley on the generation of plants, and promised others he had received from him on the same subject. The following month he handed on to the Society, as a gift from the author, Bradley's account of the coffee tree. A year later Bradley himself gave in a paper which was read to the Society, on the observations of the aurora borealis he had recently made from Campden House. In April 1717, Robert handed in another paper from Bradley on the same subject viewed from Kensington. The following November, he presented to the Society Bradley's book entitled *New Improvements of Planting and Gardening*.[55] Bradley was with Robert in Paris in 1718–19 when together they met those who shared their interests in plants and visited the botanic gardens, of which matters Robert told Sloane that 'Mr. Bradley can give you the best account'.[56]

One accepted way at that time for authors to raise the money needed for publication costs was by dedicating their books to a person likely to give them financial help.[57] The first part of Bradley's *History of Succulent Plants* (1716) and his *Gentleman and Gardeners Kalendar* (1718) were both dedicated to Robert, with fulsome compliments. A perhaps more delicate way for a client to return thanks for the favours he received was by mentioning his patron's activities in the text of his books. It is by this means that we learn most of what we know of Robert's garden at Campden House and of the Balles' estate at Mamhead, from the time of its development by Sir Peter Balle to its extensive remodelling by his grandson Thomas in the second decade of the eighteenth century.[58] Bradley tells us that (probably very soon after his return) Robert had 'propagated a large parcel' of the ilex, or evergreen oak, at Mamhead, having 'raised some thousands of them from acorns and transplanted them with success and great judgement'. Some had grown to a considerable size.[59] Bradley credits Robert with having at Campden House: 'the best collection of forward grapes I have yet met with in England' and with introducing from Italy 'the Italian green privet … among other curiosities of the like nature'. These included the wild vine or *labrusca* and, as Bradley described in 1721, the seeds of caper plants brought successfully to fruition under the latter's management.[60]

It is from Bradley also that we learn of Robert's connection with Thomas Savery F.R.S. A military engineer, Savery was elected to The Royal Society in 1706 and in November 1710 he showed it 'an addition made to his engine for raising water by fire'.[61] In 1717, Bradley referred to this 'wonderful invention of the late Mr. Savery F.R.S.' adding:

> It is now about six years since Mr. Savery set up one of them for that curious gentleman Mr. Balle at Campden House.

Despite the site's inherent problem of lying well above the water source, the engine had:

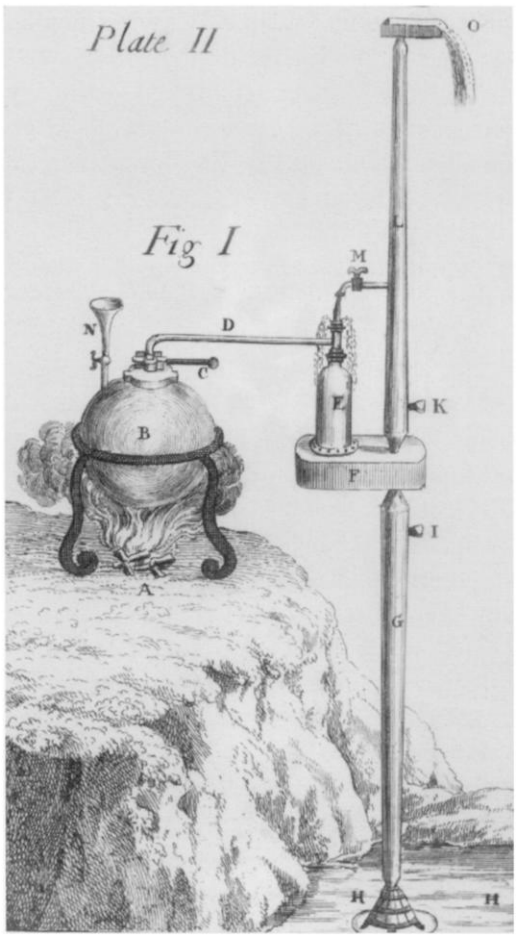

Figure 2. Thomas Savery's 'wonderful invention' for 'raising water by fire'. From R. Bradley, *New Improvements of Planting and Gardening*, part III (1718). BL 966 e 5. By permission of the British Library.

> succeeded so well, that there has not been any want of water since it has been built, and with the improvements since made to it, I am apt to believe will be less subject to be out of order than any engine whatever.

Bradley then gave a diagram of the machine, with explanations of its working.[62] Bradley's remarks, which are the only direct evidence I have found for Robert's dealings with Savery, were published a year after Savery's death and too late to be of benefit to him. However, public awareness of the engine and its efficiency could only have been enhanced by its installation at Campden House, a well-known and accessible location in London.[63]

Bradley could also bear witness to less tangible evidence of his patron's interests, and to the value of the observations and reflections of a merchant with 40 years of experience overseas. Thus, in his book on *The Virtues and Use of Coffee* (1721), Bradley described how that:

> curious gentleman Robert Balle Esq. furnished me with the following relation as he had it from a person that had been upon the place [in Arabia where coffee grew] and seen it grow.

Robert's description of the location and the history of the area then follow.[64] In the section of *New Improvements of Planting and Gardening* (1718) where Bradley discussed the sexuality of plants and in particular whether or not they were hermaphrodite, he wrote that before he explained his 'new system'—or theory on the subject:

> I think myself obliged to declare that the first hint of this secret was communicated to me several years ago by a worthy member of the Royal Society Robert Balle Esq., who had this notion for above 30 years, that plants had a mode of generating somewhat analogous to that of animals.[65]

Plagues

In this case, the evidence we have of Robert's thinking is slight but in his discussion of the causes of blight in plants, Bradley prints a 20-page letter written to him by Robert on the causes of disease.[66] Robert wrote:

> Upon discoursing with you some time since about blights upon trees, you [Bradley] seemed to be of the opinion that they were the effect of insects brought in vast armies by the easterly winds [and that these insects lodged on a host plant causing the disease]. You were then desirous of what observations I had made concerning pestilential diseases subject to mankind which I believ'd to proceed from the same cause that produced blights, i.e. from insects. I have therefore, in answer to your request, endeavoured to recollect what I have from time to time observ'd relating to the case.

Robert believed that some illnesses were caused by sources underground—mine damps, grottoes or poisonous minerals. He differentiated between plague and diseases arising from marshland, although he attributed both to 'invisible unwholesome insects'. These were of:

> that extraordinary smallness, that they are not to be discerned by the naked eyes, they are so light they float in the Air, and so are suck'd in with the breath.

They might be of different kinds and might breed in the body. Some were so extremely small that 'they are only capable of being discern'd with good microscopes'. Robert observed that plague was worse in dirty cities, such as London was before the Fire, and he attributed its absence since then to the building work and 'good laws put in execution in keeping the city clean'. He also commented on the beneficial effects of tar, coal, tobacco and other substances in preventing infection. He noted that the smoke of these and other aromatic materials was used in France and Italy to treat objects:

> brought from infected places, after they have made quarantine, and are not suffered to come on shore till they have undergone this operation.

Robert held also that freezing could destroy infecting insects. This he believed had been demonstrated during the year 1714 when a disease fatal to cows had lingered on

in indoor cow-stalls but had been eliminated by the frost from fields outside.

We do not know to what extent Robert was influenced by European writers in his views on plague. In 1546, Fracastoro, a doctor from Padua, had promoted the view that plague was caused by specific 'germs'—'seminaria prima'—and Robert's brother Dr Peter Balle had studied in Padua and been in London during the plague of 1665. Correspondence on these matters may have passed between the two brothers.[67]

Robert had in any case clearly no conception that the rat or human flea might be concerned in the transmission of plague and he, like Bradley, thought it likely that the wind played an important part in the dissemination of the minute insects which caused plague, and specifically the east wind from Tartary. Nevertheless, and whatever their origin, Robert's views on minute organisms as the cause of disease are worthy of record. When Raymond Williamson wrote on 'The Germ Theory of Disease', he included Richard Bradley as one of his 'neglected precursors of Louis Pasteur', but made no mention of Robert's letter on the subject nor indeed of the fact that Bradley incorporated without attribution, six pages of Robert's letter into the text of his own work called *The Plague at Marseilles Considered* (1721). Bradley added only one sentence to Robert's text and eliminated the personal (to Robert) nature of its final paragraph. There appears no reason to doubt the authenticity of Robert's letter, which contains specific references to his own observations in Italy, and to the experiences of the Livornese, nor to doubt that his ideas were independently formed and, as he and Bradley (in the earlier work) had said, 'served to confirm' Bradley's own opinions on the subject.[68]

The outbreak of plague on mainland Europe in 1720 strengthened Robert's views. In England, political and mercantile interests had successfully defeated the government's efforts to bring in stringent quarantine measures and in November 1721, Robert commented in a letter to Sloane:

> I see by the newspapers you are employed about quarantine. The English are not a little laughed at in their way of proceeding therein here. This place much values itself in having kept out the plague by their just and exact rule, though it has been several times round about them.

Robert described the measures successfully taken by the Italians and suggested that if the Italian ministers were consulted on the matter, they would provide the English with a copy of their methods:

> by this means you will come to agree with all the offices of health in Europe, which will be of universal quiet and ease to all.[69]

Robert was a patriot. His letters are full of references to 'the only happy country', the 'fortunate island, the envy of all'.[70] However, his experiences had taught him the failings of the English as well as the value of the free exchange of ideas, of which The Royal Society had become for him a symbol. The promotion of correspondence was a means to this end and one which he encouraged. Robert did not believe the English were good correspondents.

> 'Tis indeed a general complaint, and I doubt not deservedly, that the English are the least punctual in writing of any peoples.[71]

The Royal Society, he believed, could learn from the Académie Royale in Paris about the latter's:

> so universal correspondence, which they endeavour all ways to keep up and encourage, as the spirit and life of their society and if I am not out, I may say we are deficient in.[72]

Around the time of his visit to Paris, some members of the Society were apparently particularly exercised about this matter. The *List of the Royal Society of London* published in 1718 gave most of its members addresses and in many cases specified their particular interests. The prefaratory 'Advertisement' announced the purpose of this as 'to let the more inquisitive and learned part of mankind know where to find suitable correspondents', and also to 'advertise the curious' of those topics most suitable for promoting the ends for which the Society was founded. Richard Bradley likewise, in the Preface to his *New Improvements of Planting and Gardening* of the same year, invited 'all gentlemen who are curious' about his subjects 'to communicate their observations to him'. The importance of widespread intellectual exchange was a fundamental principle of the early Royal Society and one to which Robert's brothers had adhered. William communicated by letter with Huygens as well as with other English Fellows, and Peter was a member of its committee on correspondence.[73] Robert tried personally to encourage correspondence, in its widest sense, between learned institutions and individuals in western Europe. When in Paris and Italy he promoted the cause of foreign scholars like Dr Jussieu or Dr Antonio Latini of Florence, who wished to join the Society. He saw to the safe delivery, sometimes in person, of items such as 'a catalogue of all their vegetables' from the Paris botanic garden or, when in Italy, of books and letters sent from England to Italian or resident English men of letters. With some evident expectation that Sloane might take action, he alerted him to the fact that various 'books or papers or registers … of the faculty of physick' at Paris had been removed to the 'Library of Oxford' so that:

> it makes a chasm in their Registers here, so as they would be willing to give a good deal to have them again or their copies.[74]

Although Robert remained mindful of Sloane's concerns as an omnivorous collector, handing on to him news of coins, inscriptions or statues which might be of interest to him, their principal shared preoccupation remained botany and horticulture.[75] From motives both patriotic and to do with his friendship with Sloane, Robert, when in Europe, was particularly concerned with the promotion and improvement of the Physic Garden at Chelsea. While Sloane had had a concerned interest in the garden for many years previously, in 1722, he gave the land on which it lay to the Society of Apothecaries, stipulating that in return, the Apothecaries should (for 40 years) give an annual contribution of 50 plants to The Royal Society's collection. Writing from Paris in 1719, Robert told Sloane that although the botanic garden there had recently received some fine plants from America, he hoped the Chelsea garden, under Sloane's 'government' would outshine it.[76] When back in Italy, he sent Sloane news of the

botanic gardens he visited there and was particularly interested in promoting plant exchanges between Chelsea and the Italian gardens. Giving Sloane news of those taking place between Leyden, Amsterdam and the Grand Duke of Tuscany's garden at Florence, he told him 'doubtless if at any time you should have a mind, they would be very willing to serve you'.[77] In 1724, he himself sent Sloane some seeds of a plant which he had found 'here in a pot' and later sent him a book from Dr Michel Angelo Tilly of Pisa whose garden he had visited:

> He desires me to send you this book, with assuring you that he is very much your humble servant. He desires you will send him some seeds of plants that he may not have, and from hence you may command what is procurable in these parts to adorn your garden at Chelsea which I expect to hear, will soon be the finest in Europe.[78]

In 1728, now in his late 80s but still the indefatigable observer, Robert wrote to Sloane:

> You have lately desired some information concerning a sea monster caught not far off. I were employed about it having well viewed it and I hope the account gone home may be to your satisfaction.[79]

The Protestant

The free exchange of information was for Robert not just a matter of friendship to a person, or loyalty to an institution, it was a matter of principle. While he could appreciate the effectiveness of the empirical action of the Europeans over quarantine, he remained hostile to the autocratic beliefs he found current in Italy and France and resented their effect on intellectual life. In Paris, in 1719, despite its previous tradition of 'correspondence' he judged the Académie Royale to be in decay and commented that this was:

> natural in such governments as this, set rules and forms, with much ceremony and pomp, which must hinder its growth.[80]

In Italy, he laid the blame for such decline on the Catholic Church. Writing in 1694, he had shared the view of a visiting Englishman that:

> the kingdom of darkness prevailed in these miserable countries where the utmost endeavours go daily issuing to send all learning over the Alps and beyond the sea

and where ignorance was regarded as 'the mother of obedience and devotion'.[81] In 1721, he commented to Sloane:

> Our Prince [the Grand Duke of Tuscany] gives very small encouragement to any but the Church, as to experimental philosophy, that is quite laid aside, it being esteemed by the better sort only fit for chemists, apothecaries and quacks … all stick close to Aristotle and the schoolmen … [the only way to preferment is through] the canon and civil law, all others are esteemed impertinently useless and pedantic.[82]

Robert added ironically:

> were it not for all you troublesome and impertinent Protestants, … learning would soon be reduced to what it was in the time of the Goths etc. when a law was forced to be made to teach the priests to read: all doubting and enquiry into anything of learning, policy or religion would be of dangerous consequence and therefore as much suppressed as possible.[83]

For Robert, one of the many positive aspects of The Royal Society was the cross-fertilization which could occur when men of differing interests could converse freely. The rigid demarcation of areas of expertise was stultifying to science and to society as a whole. He condemned the condition of Italy in 1721 where the:

> arts and sciences have their particular professors and one is not permitted to tell the secrets [sc. of their own specialty] or exercise another's trade—like your several companies [city guilds] in London.[84]

He compared this Italian situation with the wide dissemination of learning in England:

> where there was freedom of thinking, speaking and acting and keeping company with the learned, especially with those of the Royal Society.[85]

Robert asserted a Protestant liberty of 'doubting and enquiry' in religious matters. Indeed, in 1675, he was sympathetic to the desire of the Greek Orthodox inhabitants of the Morea freely to practise their religion.[86] The particular nature of his Protestantism has to be deduced from scattered evidence. He took religion and its demands seriously, telling Dr Covell that 'nothing could have been more welcome to me' than his recommendation to see a 'spiritual man, it having been rarer with us of late years than comets'.[87] He believed in God as the creator of all things, the God of first causes, who although He could work miracles, 'seldom in anything acts contrary to those laws of

Figure 3. View of Leghorn ca. 1710 by J. Luder. BL *MAPS 23495 (2).
By permission of the British Library.

nature which he has instituted'.[88] That Robert was not regarded as dissenting in any overt way from the opinions of the established Church is indicated by the fact that, in 1714, he and his nephew Thomas were two of the London merchants trading to Leghorn who were consulted by the Archbishop of Canterbury about the appointment of a chaplain to the British merchants based at the port.[89] However, as a Whig MP he had shown tolerance towards the views of Protestants outside the Church of England. He had voted for the naturalization of foreign Protestants, a measure which permitted their taking the Sacrament in any Protestant church, and he had voted against the notorious Dr Henry Sacheverell, who opposed the degree of toleration already allowed to dissenters from the Church of England.[90] Moreover, there is some indication that Robert shared the questioning concerns of some at least within The Royal Society, as outside it, on the nature of the Trinity. That Christ was not the equal of God the Father was a view held by at least some in the circles frequented by Robert. These included two well-known anti-Trinitarians, Dr Samuel Clarke and the Reverend John Laurence, a friend of Bradley.[91] Robert's kinsman Thomas Cartwright (F.R.S. 1716), for nearly 50 years involved in Balle family affairs, was one of those who supported William Whiston, nominated as F.R.S. in 1716 by Martin Folkes (later President) despite the fact that Whiston had earlier been deprived of his chair as Lucasian Professor of Mathematics at Cambridge for his anti-Trinitarian opinions.[92] Newton himself, albeit refusing publicly to admit or condone such views, believed that the equality of the three parts of the Trinity was an erroneous construct of the later fathers of the Church. The truth lay with their earliest predecessors.[93] That Robert may have shared some at least of this doctrinal unease is suggested by his remarks in a letter to Sloane of 1721. Here he reported on the recent discovery in Italy of a:

> New Testament of St. Isadore in Greek, wherein is that famous passage of St. John's Gospel concerning the three persons of the Trinity. [the scholar who found it] saith Isadore there wrote, that to find out the truth of the Christian religion we ought to search into the most ancient records and fathers, not into the modern. If you have an opportunity pray present my service to Dr. Clarke with it, or who else you please of good Christians.[94]

Unquestioning obedience in matters of faith was not, for Robert, a necessary concomitant of being a good Christian. The Royal Society's long-standing tradition of tolerance towards those of non-conformist belief was inherently sympathetic to him.

Robert was in his 81st year when he expressed these opinions to Sloane. Ten years later when visited in Leghorn by John Swinton, Fellow of Wadham College, Oxford, notwithstanding his great age he was found to have 'his understanding and his senses perfect and entire'.[95] He died in 1733 or 1734, although I have found no record of his burial place or of a will.[96] Although his scathing attitude to the effect of the Catholic church on intellectual life in Italy was already evident in 1694, much of the evidence for his opinions on religious, political and philosophical matters comes from the letters he wrote to Sloane as an old man and one who had formed his opinions long before and felt no need to review them. He was content to describe the Whigs as 'noble' and their policies in 1718–19 as enriching Great Britain, with no further comment. Although Robert's prejudices were possibly not based on the considered minutiae of theological or political belief, they were based on the principle, strongly held, of freedom of debate as the lifeblood of society. Of this principle, The Royal Society was for Robert a symbol.

Conclusion

In this paper I have attempted to delineate the motives which led one early eighteenth-century non-scientist to join The Royal Society and to give it his active support until his bankruptcy supervened. Connections both familial and social provided one impetus, the winning of kudos abroad another, together with a genuine interest in some of the subjects—in his case principally botanical—with which the Society was then concerned. Robert's activity on behalf of the Society thereafter was further driven by the friendships he made within it, the opportunities it provided for learning, and the exchange of information and ideas and by his appreciation of its particularly tolerant ethos. Robert is unlikely to have been unusual in simultaneously perceiving the benefits which could accrue to Fellows in terms of valuable contacts, self-esteem and at least in certain circles, a flattering respect. In the early history of The Royal Society, public spirit and self-seeking were not mutually exclusive.

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Notes

Place of publication is London unless otherwise noted. Quotations from manuscripts are given in modern English.

1 T Sprat, *History of the Royal Society* (ed. J.I. Cope and H.W. Jones), p. 129 (St Louis: Routledge Kegan Paul, 1959).

2 *Ibid.*, pp. xx–xxi. P.B. Wood, 'Methodology and apologetics, Thomas Sprat's history of the Royal Society', *British Journal for the History of Science* **XIII**, 1–26 (1980).

3 M. Hunter, *The Royal Society and its Fellows 1660–1700*, pp. 27–31 (Oxford, British Society for the History of Science, 1994).

4 *Ibid.*, p. 31. M. Hunter, *Science and Society in Restoration England*, p. 74 (Cambridge University Press, 1981).

5 N.R.R. Fisher, 'Sir Peter Balle of Mamhead (1598–1680), a study in allegiance', *Transactions of the Devonshire Association* **129**, 79–107 (1997).

6 H. Roseveare, *Markets and Merchants of the late Seventeenth Century: the Maresco-David Letters 1668–1680*, pp. 100, 147, 348 (Oxford: British Academy, 1987). Public Record Office, Kew, C5/300/1.

7 Berkshire Record Office, Reading, D/ED F41. I am grateful to the staff of the office for transcribing this document for me. Although it suggests Robert's intended return to Leghorn, there is continuing evidence of his presence in London from 1699 onwards. See, for example, *Historical Manuscripts Commission* 45 (Buccleuch and Queensberry), vol. II, pt. II, p. 630. Guildhall Library, London MS 9563 (Thomas Death's Copybook of Letters 1698–1704) *passim*. *Private Correspondence and Miscellaneous papers of Samuel Pepys 1679–1703* (G. Bell, 1926) ed. J.R. Tanner, vol. I, pp. 332–333. Vol. II, p. 17.

8 PRO, C5/300/1. Devon Record Office, Exeter, 484M/T1/17.
9 Guildhall MS 9563 f. 219v. Kensington Local Studies Library, Pitt MSS 3663, 3664, 3665. In 1713 Thomas Balle and two of Robert's sisters acquired a share of the property.
10 *HMC* 71, (Finch) **II**, 185; **III**, 423–424. British Library, Stowe MSS 219, ff. 113b, 171b, 209b, 210. PRO, SP98/17 (unfoliated).
11 *Journal of the House of Commons* **16**, 11 and 119. John Chamberlayne, *Magnae Britanniae Notitia,* pp. 646–649 (1710). On the social status of merchants in the early 18th century see: N. McKendrick, 'Gentlemen and Players' revisited…', in *Business Life and Public Policy* (ed. N. McKendrick and R.B. Outhwaite), pp. 98–136 (Cambridge University Press, 1986).
12 Royal Society Library, Journal Book **X** (copy), 185, 199, 212 (no proposer is named), 249, 432, 524; **XI**, 30, 90, 144, 207, 268, 401; **XII**, 60. He attended his last Council Meeting on 13 July 1720 (Royal Society Library, Council Minute Book **2**, 323), although he was re-elected, to Council on 30 November following. On 11 July 1721 he wrote to Sloane from Leghorn.
13 RSL, CMB **2**, 229–323 *passim*. He was abroad during the winter of 1718–19, missing five Council meetings. During the period 1713–17, Newton missed only one meeting out of 41.
14 RSL, JB X, 247, 425–426; CMB **2**, 239; JB **X**, 310, 433, 306; **XI**, 15, 155.
15 RSL, JB **X**, 222. British Library, Additional MS 46172 f. 102.
16 Roseveare, *Markets and Merchants*, pp. 100–103, 311, 369–370, 406–407, 484–485. *Calendar of the Court Minutes of the East India Company* (ed. E.B. Salisbury) (Oxford University Press, 1911–35) *1674–6*, 57, 67, 184; *1677–9*, 52–53. RSL, JB **X**, 14, 463. R. Bradley, *The Virtue and Use of Coffee with regard to the Plague*, p. 27 (1721).
17 RSL, JB **X**, 455–456, 461–462, 513–514. *Journal of the Commissioners for Trade and Plantations 1709–15*, pp. 393–394, 470 (HMSO, 1925).
18 RSL, JB **X**, 463, 513, 519; **XI**, 165.
19 RSL, JB **XI**, 148, 165.
20 RSL, JB **X**, 428–429; **XI**, 112, 267, 148–149, 433; **XII**, 36. BL, Sloane MSS 4046 ff. 100–101, 146; 4047 f. 288. On Sherard see *DNB*, vol. XVIII, p. 67, and on Gale see *DNB*, vol. VII, pp. 815–816.
21 RSL, JB **XI**, 218.
22 *London Gazette* 14 March 1721 to 18 March 1721 (unpaginated). PRO, Works 6/7 302–306. PROB 11/473 f. 29. No other details of the outlawry have come to light save those concerning Robert's putative ownership of statues at Hampton Court. BL, Sloane, 4046 f. 100–101.
23 *ibid.* The words of this sentence are garbled but their sense seems clear. See also Sloane 4046 f. 146 and 4047 f. 288.
24 BL, Add. MS 22910 f. 421.
25 BL, Sloane MS 4046 ff. 100–101.
26 BL, Sloane MS 4046 ff. 100–101.
27 BL, Sloane MS 4046 ff. 100–101.
28 T. Birch, *The History of the Royal Society of London*, vol. I, pp. 3–5 (1756). A. Armitage, 'William Ball, F.R.S.', in *The Royal Society: its origins and founders* (ed. Sir H. Hartley), pp. 167–172 (Royal Society, 1960). *DNB*, vol. I, p. 998. R.E.W. Maddison, 'The Accompt of William Balle from 28 November 1660 till September 1663', *Notes Rec. R. Soc. Lond.* **14**, 174–183 (1959).
29 He attended the University of Leyden before going to Padua. *DNB*, vol. III, p. 977. *Apollinare Sacrum* (BL: 11403 bb 47) Birch, *Royal Society* **I**, 239 and **I** and **II**, *passim*.
30 Birch, *Royal Society* **I**, 408–409. 'A way of preserving ice and snow by chaffe', *Phil. Trans.* **I**, 139 (December 1665). Robert is named here only as William Balle's brother 'now residing at Livorno [Leghorn]'. Robert was the only brother to do so, so far as is known.
31 E. de Beer, *The Diary of John Evelyn*, vol. III, pp. 297 and 310 (Oxford: Clarendon Press, 1955). BL, Add. MS 15, 857 f. 27.

32 Tanner (ed.) *Private Correspondence*, vol. I, pp. 332–333. William Balle was also a friend of the active and long-lived F.R.S. Abraham Hill (d. 1721) see. BL, Add. MS 5488 f. 90.

33 BL, Sloane MS 4063 f. 92. I am grateful to Claire Ballard for translating this Italian letter for me. Charles was not an F.R.S.

34 RSL, JB **X**, 14. In 1704, 'Mr Ball communicated an Italian paper of the ways of preparing the Bologna Stone, to shine in the dark'. RSL, JB **X**, 69.

35 BL, Add. MS 22910 f. 421. Covell had been chaplain to the English Embassy in Constantinople and had stayed with Robert in 1677: BL, Add. MS 22913, 162–165.

36 BL, Sloane MSS 4045 ff. 181–182; 4046 ff. 100–101.

37 Royal Society Library, Account Book 1683–1722 (unpaginated), under date 30 May 1710. *An account of the late proceedings in the Council of the Royal Society, in order to remove from Gresham College into Crane Court in Fleet Street* (1710).

38 BL, Sloane MSS 4046 ff. 100–101, 146; 4047 f. 288.

39 Hunter, *Royal Society*, pp. 35–54, 126.

40 Guildhall MS 9563, ff. 270v, 271v, 272, 275, 278, 279.

41 PRO, Works 6/7, 302–306, 363. *Calendar of Treasury Papers 1702–7* (ed. J. Redington), pp. 168–169 (1874). I am indebted to Suzanne Groom for her help in this matter.

42 BL, Add. MS 34, 356 f. 1. This passage is quoted from the draft biography of Robert Balle written for the History of Parliament's 1690–1715 Section. This biography is copyright of the History of Parliament Trust to whom I am grateful for permission to quote from it. I am also grateful to Valerie Cromwell for her help. For a balancing view of Blackwell see: *HMC 45* (Buccleuch and Queensbury) vol. II, pt II, pp. 692–693.

43 *Calendar of State Papers Domestic 1697*, 148, 257, 261: *1702–3*, 87, 244–6. *HMC 17* (House of Lords n.s.) **XII**, 288–289.

44 *The Correspondence of Isaac Newton* (ed. H.W. Turnbull, J.F. Scott, A.R. Hall and Laura Tilling), vol. V, pp. 93–94 (Cambridge University Press, 1959–77).

45 RSL, JB **XI**, 122. *Correspondence of Isaac Newton*, vol. VI, p. 357.

46 On earlier theories about this circle see: L. Jessop, 'The Club at the Temple Coffee House—facts and supposition', *Arch. Nat. Hist.* **16**, 263–274 (1989). An English visitor to Leghorn in 1722 described Robert as 'an ingenious man in gardening and a friend of Sloane' (J. Ingamells, *A Dictionary of British and Irish Travellers in Italy 1701–1800* (New Haven, Yale University Press, 1997). I owe this reference to Suzanne Groom.

47 In his article 'Richard Bradley's relationship with Sir Hans Sloane', *Notes Rec. R. Soc. Lond.* **25**, 59–77 (1970), F.N. Egerton makes no reference to Robert Balle or to the Society's Council or Journal Books.

48 BL, Sloane MS 3340 f. 23.

49 A List of the Royal Society of London (1718). The only other Fellows so demarcated are Sloane, Bradley, John Mortimer (author of the *Whole Art of Husbandry*) and William Tempest of the [Inner] Temple.

50 See for example: BL, Sloane MSS 4046 f. 146; 4050 f. 41; 4068 f. 138 (letter of H. Sloane to R. Balle).

51 RSL, JB **X**, 428–429.

52 S.M.Walters, *The Shaping of Cambridge Botany*, pp. 15–29 (Cambridge University Press, 1981). He quotes H.H. Thomas, 'Richard Bradley, an early eighteenth century biologist', *Bull. Br. Soc. Hist. Sci.* **I**, 176–178 (1952). The relationship between Balle and Bradley appears to have been first noted in print by W.Roberts in 'R. Bradley, pioneer garden journalist', *J. R. Hort. Soc.*, 164–174 (1939), and explored further by B.Henrey in *British Botanical and Horticultural Literature before 1800* (Oxford University Press, 1975), 3 vols, to which work I am much indebted. I am also indebted to Todd Gray and Huw Jones for their help in these matters. Henrey deals with Bradley at length, including the questionable elements in his character, and with Balle and Bradley, esp. **II**, 437–440.

53 RSL, JB **X**, 243. BL, Sloane MS 4065 f. 160. In May 1714 Bradley asked Petiver to 'acquaint my friends and particularly Mr.Balle of my departure'. If Bradley were an employee, Robert would surely have been informed of this beforehand. See also: Sloane MS 3322 ff. 49, 51, 73. John Laurence, *The Fruit-Garden Kalendar* pp. 29–30 (1718).
54 R. Bradley, *The Gentleman and Gardeners Kalender*, p. I (1718).
55 RSL, JB **XI**, 37–41, 51, 55, 60, 109, 173, 200.
56 BL, Sloane MS 4045 ff. 165, 181–182. Bradley dealt directly with the Society between 1720 and 1728.
57 Roberts, 'R. Bradley', 168.
58 On Sir Peter and Thomas Balles' activities at Mamhead see: R. Bradley, *A General Treatise of Husbandry and Gardening*, pp. 29–34 (1721–24).
59 R. Bradley, *New Improvements of Planting and Gardening*, p. 49 (1717).
60 Bradley, *New Improvements*, vol. III, p. 4, vol. II, pp. 24 and 33. Bradley, *General Treatise*, vol. II, p. 153.
61 RSL, JB **X**, 246.
62 Bradley, *New Improvements*, vol. III, pp. 174–179.
63 For one visitor's comment see Bradley, *New Improvements*, vol. III, p. 24.
64 R. Bradley, *The Virtue and Use of Coffee with regard to the Plague* (1721) pp. 27–8.
65 Bradley, *New Improvements*, vol. I, p. 12. It is perhaps a measure of Bradley's client relationship with Robert that he should attribute his concept of the sexuality of plants to him rather than to Nehemiah Grew to whose work embodied in *The Anatomy of Plants* of 1682, this idea is now often credited.
66 Bradley, *New Improvements*, vol. III, pp. 53–70 gives Bradley's views on blight. Robert's letter is printed pp. 80–100.
67 J. Ehrard, 'L' idée de contagion au XVIII siècle', *Annales, Economies, Societies, Civilisations* **12**, 46–59, esp. 48 (1957). In a discussion of minute organisms in his *Gentleman and Gardeners Kalendar*, p. 38, Bradley refers to Robert's letter together with 'Mr. Hook's *Micrographia* [and] Mr. Lewanhoek's works in the *Philosophical Transactions*', as well as his own work.
68 R. Williamson, 'The germ theory of disease. Neglected precursors of Louis Pasteur', *Annls Sci.* **II**, 44–56 (1955). R. Bradley, *The Plague in Marseilles Considered*, pp. 33–38 (1721). Bradley, *New Improvements*, pp. 70, 81, 83–84, 86, 91–100. Bradley may have regarded as adequate attribution his general reference in the preface to *The Plague in Marseilles* to his writing in *New Improvements.*
69 P. Slack, *The Impact of Plague in Tudor and Stuart England*, pp. 326–333 (Routledge, Kegan Paul, 1985). BL, Sloane MS 4046 f. 146. In November 1720 the London government had in fact already consulted the authorities in Leghorn, Venice and Messina on this matter. *Journal of the Commissioners for Trade and Plantations 1781–1722,* pp. 225–226.
70 BL, Sloane MSS 4045 ff. 181–182; 4047 f. 288.
71 BL, Sloane MS 4046 f. 101.
72 BL Sloane MS 4045 ff. 181–182
73 M.Hunter, 'Promoting the New Science, Henry Oldenburg and the early Royal Society', *Hist Sci.* **XXVI**, 165–181 (1988). Armitage, 'William Ball', pp. 170–171, for example. Birch, *History* **I**, f. 407.
74 BL, Sloane MSS 4045 ff. 165, 181–182; 4050 f. 41; 4046 ff. 100–101; 4045 f. 187.
75 BL, Sloane MS 4046 ff. 100–101
76 BL, Sloane MS 4045 ff. 181–182. G.R. de Beer, *Sir Hans Sloane and the British Museum*, pp. 60–61 (1953).
77 BL, Sloane MS 4046 ff. 100–101
78 BL, Sloane MS 4047 f. 288.
79 BL, Sloane MS 4049 f. 248. This is the last extant letter to Sloane. It has been bound out of date order in the volume.
80 BL, Sloane MS 4045 ff. 181–182.

81 BL, Add. MS 22910 f. 421: see also Sloane MS 4050 f. 41 for his comments on Italian superstition.
82 BL, Sloane MS 4046 f. 146
83 *ibid.*
84 *ibid.*
85 BL, Sloane MS 4046 ff. 100–101
86 PRO, C01/34 ff. 103–104; C0324/4. On the plight of Greek Orthodox Christians and the English response, see: E. Carpenter, *The Protestant Bishop*, pp. 557–559 (Longmans, Green, 1950).
87 BL, Add. MS 22910 f. 421
88 R. Bradley, *New Improvements* **III**, 81.
89 BL, Lansdowne MS 1041 ff. 6r and v,7.
90 [S.Whatley], *A Collection of White and Black Lists, or a view of the gentleman who have given their views in Parliament for and against the Protestant religion*, pp. 13–18 (1715) (BL, 440 1 (4)). H.T. Dickinson, 'The Tory Party's attitude to foreigners: a note on Party principles in the Age of Anne', *BIHR* **XL**, 152–165 (1967). G.Holmes, *British Politics in the Age of Anne,* pp. 104–105 (Hambledon Press, 1987). In Paris in 1719, Robert rejoiced that the [exiled] 'Tories and high churchman' there, as in England, seemed disheartened. (BL, Sloane MS 4045 ff. 181–182).
91 J.P. Ferguson, *An Eighteenth Century Heretic, Dr. Samual Clarke*, pp. 48–51, 54–56, 77–78, 87–88, 214–215 (Kineton: Roundwood Press, 1976). Henrey, *British Botanical and Horticultural Literature*, vol. II, pp. 415–421. Laurence, *Fruit-Garden Kalendar*, pp. 29–30.
92 J. Wasse, *Reformed Devotions* (Oxford, 1719) Dedication. On Wasse see: *DNB*, vol. XX, p. 899. Dean and Chapter Library, Exeter MS 6050/2/10, 11, 13. R.S. Westfall, *Never at Rest*, pp. 652–653 (Cambridge University Press, 1986 edn). W. Whiston, *Historical Memoirs of the life of Dr. Samuel Clarke*, pp. 8–12, 17–24, 86–87 (1730). W. Whiston, *Memoirs of the Life and Writings of William Whiston*, pp. 226, 298 (1749–50). RSL, JB **XIII**, 206.
93 R. Westfall, *Never at Rest*, pp. 309–319, 329–331, 344, 350–351, 489–490, 592–594, 684–653, 820–824 (Cambridge University Press, 1996).
94 BL, Sloane MS 4046 ff. 100–101.
95 History of Parliament Trust, draft biography of Robert Balle, 2–3 and note 4. Wadham College, Oxford, MSS Travel Journal of John Swinton A11 5. I am very grateful to Oliver Pointer for giving me a copy of this document. Swinton puts Robert's age as 97 but in November, 1724, Robert himself said he was 'near the 85th year of age'. (Sloane MS 4047 f. 288), so in 1731 he was only about 91.
96 RSL, CMB 3, 256 gives Robert as deceased 1734 but RSL, MS 382 give him as *ob.* 1733, with no other evidence.