JOHN RAY IN ITALY: LOST MANUSCRIPTS REDISCOVERED

by

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This paper discloses the content of two manuscripts of John Ray that have hitherto been unknown to Ray scholars. The manuscripts survive in the Hampshire Record Office, having descended through the Prideaux-Brune family. They record information about Ray’s tour of Italy in the 1660s that does not appear in his Observations …made in a journey through… the Low-countries, Germany, Italy and France (1673), including a visit to the museum of Athanasius Kircher in Rome, and provide clues concerning the composition of Ray’s 1673 book.

Keywords: John Ray; travel; Rome; Padua; Athanasius Kircher; Philip Skippon

John Ray travelled extensively in mainland Europe between 1663 and 1666 in the company of his lifelong friend and co-author, Francis Willughby, and of two of his former pupils at Trinity College, Cambridge: Philip Skippon and Nathaniel Bacon.¹ They journeyed from Calais through Flanders, The Netherlands, Germany and Austria before reaching Italy, where the party split up, with Willughby returning home via Spain while Ray and Skippon spent longer in Italy, with a side trip to Malta; they then went via Switzerland to France, which they left for England in April 1666. Existing knowledge of the journey and what transpired in the course of it has been based on the volume that Ray published in 1673 entitled Observations topographical, moral, & physiological; made in a journey through part of the Low-countries, Germany, Italy and France: with a catalogue of plants not native of England, supplemented by an account by Philip Skippon (to whom Ray’s 1673 volume was dedicated) entitled ‘An Account of a Journey Made Thro’ Part of the Low-Countries, Germany, Italy, and France. By Philip Skippon, Esquire’; this was published in volume 6 of A. and J. Churchill’s Collection of Voyages and Travels in 1732.²

Canon Charles E. Raven gave a succinct account of the entire journey in his John Ray: naturalist (1942; 2nd edition 1950), in which he slightly archly commented how Ray’s Observations was ‘to be judged rather by the standards of Baedeker than by those of Eothen’, his reference to the standard guidebook renowned for its factuality being balanced by an allusion to A. W. Kingslake’s more evocative travelogue of the Near East, published in 1844.³ In the course of his narrative of the trip, Raven refers to a few

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ancillary documents, including some letters published in William Derham’s edition of *Philosophical Letters Between the late Learned Mr. Ray And several of his Ingenious Correspondents* (1718) and two papers published in *Philosophical Transactions* in 1706–07. The latter were the work of Samuel Dale, a close associate of Ray’s who wrote the earliest published life of him and who was given responsibility for his books and papers at the time of his death in 1705.\(^4\) One was entitled ‘A Letter from Mr Samuel Dale to Dr Hans Sloane, R.S. Secr. giving an Account of what Manuscripts were left by Mr John Ray, together with some Anatomical Observations made at Padua by the said Mr Ray’, and the other ‘Observations made at Rome, by the late Reverend Mr. John Ray, of the Comet which appeared Anno 1664. Communicated to the Publisher by Mr. Samuel Dale.’\(^5\)

Dale introduced the first of his papers by a brief note to Sloane in which he attempted to answer ‘the desire of your self and others, in acquainting you with what Manuscripts Mr Ray hath left, which might be useful to the Commonwealth of Learning’. Perhaps the most important of these was his *History of Insects*, which, as Dale indicated, Ray had nearly finished at the time of his death and which was published by the Royal Society in 1710.\(^6\) Beyond that, Dale explained how the text that he was presenting in his paper comprised an account by Ray of the dissection of human bodies that he had witnessed in Padua, together with dissections of a hare and a mountain hen, ‘neither of which can I find published in his Works, nor hath he taken any notice of these Observations in his Book of Travels, altho’ the Charge was very considerable, amounting to 284 Livres and 15 Soldi of Venice’. He went on:

> Besides these, there are in his *Adversaria* many *Observations, Inscriptions, Epitaphs, Antiquities*. &c. which being collected together, would make a large *Supplement* to his *Observations* already published.

> Nor must I forget his Travels in our own and the neighbouring Kingdom, of which he hath left divers *Itineraries*: These may not be unuseful to our *English* Travellers, he being as careful in making Observations and Collections at home, as he was in foreign Countries.\(^7\)

The implication is therefore that Dale had several significant Ray manuscripts in his hands at that point, particularly relating to Ray’s travels. Of these, three of Ray’s ‘Itineraries’ in England and Wales dating from between 1658 and 1662 appeared in William Derham’s edition of *Select Remains of the Learned John Ray*, posthumously published by his wife’s nephew, George Scott, in 1760.\(^8\) The manuscript of the first of these came to light recently and was sold by Bonhams in the sale on 28 March 2006 that also included the ‘Hooke Folio’, purchased by the Royal Society and now available online.\(^9\) The travel manuscript was in quarto format, comprising 12 pages densely written in Ray’s hand, bound in oatmeal wrappers.\(^10\)

Two further manuscripts have now been located that clearly formed part of the collection that Dale had in his hands when he wrote his *Philosophical Transactions* papers. These form part of the Prideaux-Brune Family MSS in the Hampshire Record Office. The Prideaux-Brune family, whose seat is Prideaux Place, Padstow, Cornwall, acquired their Hampshire connection after the death without heir of Charles Brune in 1769; his estates devolved to his grand-nephew, the Rev. Charles Prideaux, who thereupon adopted the name Prideaux-Brune; these included the manor and advowson of Rowner, near Portsmouth, which long remained in the possession of the family.\(^11\) The rest of the collection comprises estate records of the eighteenth and nineteenth centuries and manuscripts of nineteenth-century
John Ray in Italy

and twentieth-century date; most of the latter relate to the Rev. Edward Stapland Prideaux-Brune, who was Rector of Rowner from 1884 to 1919, including his diary of a tour of the continent in 1874 (item 12) and various antiquarian compilations. Items 5 and 6 (19M59/5–6), however, are of seventeenth-century date, comprising slim paper books densely written in Ray’s characteristic hand and bound in oatmeal wrappers similar to the manuscript sold at Bonhams in 2006. Both have on their cover the pencil inscription ‘Foreign Travels’, apparently in Ray’s hand, and above this in both cases is an eighteenth-century ink inscription, ‘A Ms. of Mr Ray’s’. Beneath this, both volumes have the inscriptions ‘Found among Swinton Papers at Netherton. CGPB.’ and ‘Given to me by my Father, Prideaux Place, August 31. 1891. E.S.P.B.’ The latter initials are those of the Rector of Rowner, whereas the former are of his father, Charles Glynn Prideaux-Brune, then head of the family and owner of Prideaux Place; by ‘Netherton’ he means Netherton Hall, Devon, the residence of another branch of the family, whose owner, Sir Edmund Saunderson Prideaux, had died in 1875 and his widow, Louisa (née Bodle), in 1878. On the cover of 19M59/5, accompanying the inscription signed ‘E.S.P.B.’, is a brief biographical note about the cleric and orientalist John Swinton (1703–77), from whom the Rev. Prideaux-Brune evidently believed the manuscripts had descended.

Quite what the link was with Swinton is unclear. He was a Fellow of the Royal Society and keeper of the university archives at Oxford, but he is not known to have had any links with William Derham, who succeeded Samuel Dale as the custodian of Ray’s manuscripts, or with George Scott, who inherited them on the death of Derham’s son, also William Derham (1702–57), President of St John’s College, Oxford. In fact, it is possible to account for the descent of the manuscripts without invoking Swinton at all. That they passed through the elder Derham’s hands is clear from the fact that 19M59/6 has an inscription in his hand on the first (unpaginated) leaf: ‘Furreign Inscriptions. Marchetti’s Lectures, &c. Ao 1663’. It is equally clear that they passed through the hands of Scott, because it was evidently he who paginated them, while he was also responsible for the eighteenth-century inscriptions on the covers of both manuscripts that have already been noted; for the note ‘1664. Observations at Rome’ inside the cover of 19M59/5; and for annotations on pp. 15 and 24 of that volume that are noted below. He may have considered publishing these documents in addition to the texts of Ray’s domestic travels in Select Remains, but he failed to do so, perhaps partly because of the overlap with Ray’s Observations and with the material published in Philosophical Transactions, but partly also because (as he explained to his publisher, Robert Dodsley, of the texts that were published) ‘It is more difficult to make these Extracts than one would imagine’.

As for their subsequent history, Scott died childless in 1780, leaving his estate to his second cousin, Robert Bodle, whose grand-daughter, Louisa, married Sir Edmund Saunderson Prideaux in 1855. It must have been through her that the manuscripts reached Netherton, along with other Ray material that Charles Prideaux-Brune gave to John D. Enys, part of which he sold to the Botany Department of the British Museum in 1884 while part remained in the hands of the Enys family and was sold at another sale by Bonhams on 28 September 2004.

Turning now to the manuscripts themselves, it is appropriate to consider 19M59/6 first, because it relates to an earlier stage of the European tour of Ray and his colleagues than does 19M59/5. It opens with six and a half pages of transcripts of inscriptions at Augsburg, which the party visited in August 1663, as we learn from Ray’s Observations (although no such inscriptions are included there). Then, after a transcript on p. 9 of a Greek inscription in
Venice, where Ray and his colleagues stayed later that year, we move on to information about Padua, which the party visited in the winter of 1663–64. Here, whereas the published Observations simply lists the public buildings of the city, the manuscript includes not only lengthy transcripts of inscriptions on funerary monuments but also descriptive material. The incomplete Church of St Guistina is described as

a faire brick building having 4 Cupolo’s paved with marble of various colours: the body of the Church supported by great pilasters (as is the fashion in Italy[]): it’s not yet perfected, for they intended to encrustate the frontispice with marble; but now by reason of the warre with the Turkes the Republick takes a subsidy from the Friars of the Convent (which they pretend to be the reason why they bestow no money to finish their Church). In this Church the high Altar (piece is) of inlaid Mosaick work, the Quire behind the altar, as we have observed in many churches in Italy. The backs of the seates of the quire are of wood, carved artificially with figures representing the most materiall passages of the history of our Saviour…

This Church belongs to the Benedictines who has a stately cloyster adjoining esteemed the richest & best endowed in Italy.

This Saint is much honoured by the Venetians for that they obtained a signall victory against the Turkes on her day in memory whereof they have stamped their silver Ducats with her image on one side upon waters & this motto round about Memorero tui Justina virgo.18

This is immediately followed by Ray’s account of the church of Sant’Antonio:

In the Church of St Antony, called καταξίων, the Santo, are many things worth the taking (notice of). But especially the chappell of S Anthony on the North side of the church cannot sufficiently be admired for the carved work thereof. On the walles of this chappell round about are represented the miracles wrought by this St in figures of white marble so curiously carved ut nihil suprah; done by several workemen, the names of some of them are put to the pieces which they made viz Tullius Lombardus, & Sansovinus

The body of St Antony lies within an altar piece, standing in the middle of this chappell, & on all festivalls multitudes of people come to kisse the Saints shrine, whose body casts forth a very sweet perfume, whether of it selfe or &c.19

The account of what Ray and his colleagues saw while in Padua is interspersed by notes on Ferrara and Verona, which the party visited en route from Padua to Milan. Concerning the former, there is a brief note on the customs and terminology of dining in the city, which Ray sought to elucidate by a quotation from Juvenal’s Satires, while concerning the latter there is a description of Lodovico Moscardo’s museum: this overlaps with the account given in the published Observations but is more fulsome and detailed, including various items that are not mentioned in the published account, which was curtailed on the grounds that a published catalogue existed to which readers could refer.20

Virtually the whole of the rest of 19M59/6 deals with Ray’s encounters with medical men in Padua. First there is a brief Latin account of Antonio Molinetti and Pietro Marchetti and the gynaecological characteristics of Paduan women on which they reported, including a strange proclivity to internalize needles.21 Two pages later we launch into the account of the dissection by Marchetti, the caesarean section by his son, Antonio, and the accompanying accounts of dissections of a hare and a mountain hen or capercailzie that (as we have already seen) were published in full by Samuel Dale in Philosophical
Transactions in 1706–07. The dissections evidently aroused great interest in the party, because a set of ‘Observations’ on them also survives among Francis Willughby’s papers, now at Nottingham University Library. In Ray’s case, his notes occupy 19 densely written pages, within which appear various dates between 10 December and 2 January, and they provide great detail about the anatomical procedures followed, often with ‘NB’ marked in the margin: indeed, Canon Raven took particular interest in the published version of them as illustrating the roots of the anatomical expertise that Ray was later to display, particularly in his Synopsis animalium quadrupetum of 1693. Finally, on the last page of the book, there is a detailed account in English of ‘The manner of making soldi at Venice’, again with no equivalent in the published Observations.

As for 19M59/5, this is entirely devoted to information recorded in Rome, which Ray visited from September 1664 to January 1665 with Skippon, having parted company with Willughby and Bacon at Naples. It opens with seven pages of notes in Italian on the religious orders of modern Rome, derived from Pompilio Totti’s Ritratto di Roma moderna (1638), which has no equivalent in Ray’s Observations, presumably because it was too derivative to be included there (it should be noted that in his notes Ray repeatedly refers both to this work by Totti and to his companion volume, Ritratto di Roma antica (1627), the standard guidebooks for tourists of the period, copies of both of which were to be found in Ray’s library). Then there are some detailed notes on a linnet-like bird, the ‘verzellino’, and on a species of duck, on both of which Ray was to draw in his posthumous edition of Willughby’s Ornithologiae libri tres (1676). There is also the text of an otherwise unknown letter to the Italian savant, Tomasino Corneli, whom Ray had met in Naples and a letter from whom to Ray was published in Derham’s Philosophical Letters, although this one has hitherto been unknown. After a page and a half of transcriptions of epitaphs, including that of Raphael, we come to a three-page description of Athanasius Kircher’s museum at the Collegio Romano. There is no equivalent to this in Ray’s Observations, although a parallel account appears in Skippon’s ‘Journey’: we shall return to this and its implications in due course.

Starting on p. 19 there are three pages of notes on visits, on 26 December 1664 to Tivoli and places en route, and on 28 December to various antiquities and other sights in Rome, including a room in which they saw Queen Christina of Sweden. Then pp. 22–25 comprise a general account of Rome, including local foodstuffs, manufactures and artworks. Lastly, pp. 26–29 comprise notes dated from 1 to 6 January 1664/5 on visits to the Vatican, the Castel St Angelo and St John Lateran, including transcriptions of inscriptions, and on the Roman climate. Page 29 is the final page of text and it is pasted to the rear cover, evidently because what would have been p. 30 is blank. Between the content of pp. 19–29 and Ray’s account of Rome in his Observations there is a small amount of overlap, although the material is quite differently presented. The remainder of this article will therefore be devoted to a comparison between the two, which will not only clarify what is new in the recently discovered manuscripts but also throw light on the way in which Ray’s published account of his travels was evidently constructed from a series of slightly disparate manuscripts of which these two are survivals.

It seems appropriate to start with the general comments on Rome, which appear on pp. 22–25 of the manuscript and pp. 360–364 of the printed Observations. Apart from some general introductory comments about the size and topography of the city, which appear in the latter but not the former, much of the text overlaps exactly, although the printed version occasionally adds qualifications or minor pieces of information: for instance, the comment that food was available ‘at reasonable rates’ in the manuscript is
replaced there by ‘yet are not things generally so cheap there as either at Naples or Florence’, while the printed version includes an Italian proverb and other comments on the fish called *triglia*, along with a quotation from Pliny concerning breadmaking. Less frequently, minor pieces of information in the manuscript are omitted from the printed account: for instance, concerning the availability of cranes, the words ‘but not so frequently’ are omitted, as is ‘a very good foul if young & fat’, while under fish the printed version omits ‘Great store of small fry, being a hodge-podge of all sorts, which they call Frittura’. Towards the end of the passage on foodstuffs, Ray’s comments are increasingly curtailed in the published version, including his remarks on fruit, on milk and cheese, on chestnuts (though he adds a marginal note that the latter are not unique to Rome) and on broths made from chickpeas, kidney beans and lentils. A further passage that is omitted altogether is as follows:

It is the custome heer to cry things about the streets as at London: as fruit, fish, & other edibles. /p. 25/

About Christmas time it is the fashion all over the town to sell a kind of baked pudding (or if you will, cake) made up & baked in the fashion of a loaf. It is made of flower, tinctured yellow with saffron, & full of raisins (but no sewet;) they call it *Pane giallo*. Another sort of this cake they have which looks like a browne loaf, it hath no plums in[,] it is heavier then the former & mingled with gobbets of Lemon & Citron pill candied, instead of plums. Besides they sell 2 or 3 sorts of sweet-meats made of nuts, pine-kernells, honey & flower, which is very hard to cut & no desireable dainty to any curious palate.

The text then continues almost exactly as the printed book, dealing with manufactures, music and art, up to the sentence about Bernini and Pietro de Cortona as the leading artists of the day, except that sentences dealing respectively with the profusion of ancient small finds and the climate are moved in the published version to places where these matters are dealt with more fully.31

Of the passages that give dated notes on sightseeing there is a small amount of overlap with the printed *Observations*, for instance Ray’s comparison of the sulphurous waters near Tivoli with those at Knaresborough in Yorkshire.32 However, the divergence is so great that it seems appropriate to transcribe the relevant passages of the manuscript almost in full.

Dec. 26. 1664 S. V. we hired a coach, & rode out to Tivoli 16 m. distant from Rome. By the way at a bridge (over the river Aniene) called Ponte Lucano we saw an ancient monument of the fashion of a great round tower, erected to one Plautius in memory of his good service to the Commonwealth of Rome in Illyricum: Upon this monument are 3 ancient inscriptions.

Neare the town another the like round structure.

At the town the things most remarkeable are the fall of the Aniene down the rocks, & its running under ground. The remains of the temple of Sibylla Tiburtina. it was round built with an open portico of pillars about it. the Grotte of Sibylla, as they would now make us believe.

The palace & garden of Cardinal d’Este, for magnificent water-workes much exceeding Frascati: because of the turbidnesse of the river we could not see them play. In winter time they will not let them, for fear of choaking up the pipes. There is a little modell of old Rome. It seems that the ancient Tibur was some 2m. distant from this new town in the way to Frescati. Near the gate of this town within the walles
stand 2 ancient statues, which seeme by the rudenesse of the work, the odnesse of the fashion, & the kind of stone, (which is the same with that the Obelisks are made of) to be Egyptian work. The so much talked of Confetti we found at Tivoli, but they grow not near the town but in a river of Sulphureous water which we passed over more than 2 m. on this side of Tivoli. The water of this river stinkes filthily like rotten egges, & is deeply tinctured with a blewish green. It reakes & is a little hote where we passed it, which is at a great distance from its spring-head, where doubtlesse it is very hote. It precipitates a kind of crumbling white stone that concretes into this kind of Confetti. This is a very large stream, The smell of it is like the smell of the Sulphur-well at Knaresburrough, & it tastes saltish.

This day in our return we saw the church of S. Lorenzo, one of the seven. Wherein we chiefly noted the great marble pillars; the stone on which S. Lawrence was laid when he was taken of the grediron, on this stone remaines to be seen the print of his body: And some good pictures.

Dec. 28 We rode out to S. Sebastian, First we saw the church of S. Paul. A vast thing having 4 naves, & 4 rowes of pillars of 20 in a row. The top of it is plain timber & neither plaistered nor gilt. Therein we saw a monument for Pope Boniface IX, The inscription whereof you have in Roma mod: as also33 whatever is remarkeable about the Church. Upon the base of a little pillar carved with severall figures, which stands without the Church by the wayside these verses are inscribed.

On one side.

Hanc sacris Veteres facibus statuere columnas
Quam Cassinenses restituere Cruci.

On the other.

Olim ignes, num clara Dei vexilla triumphus
Devietæ mortis symbola Pacis habet.

About a mile further we came to a Lump of Churches standing together, They are 3. 1. That of SS. Vincentius & Anastasius. 2. S. Maria Scala cali, where S. Bernard saw the Al[l] Soules ascending out of Purgatory into heaven. Whoever says a masse at the Altar heer delivers one soul out of Purgatory. 3. S. Paolo alle tre fontane. Within this church along the South-wall are 3 fountaines made by the 3 leaps which S. Pauls head made when it was cutt off. Of these fountains the water of the first is the warmest, the second cooler then that & the 3rd coolest of all. There also stands the stone-pillar to which (they say) S. Paul was bound when his head was cut off. Hence we passed by the Annunciata (a little Church where are great indulgences granted to those which visit it) to S. Sebastians. A little above we saw the sepulchre of Metellus wife to Crassus called Capo di bove by the vulgar because of the Oxe-heads carved upon it. The base or bottome of this building is a square, the body round resembling a great tower. The walles of a vast thicknesse, it is faced or covered over with fair free-stone handsomely hewed. Within there is a hollow or room cupoloed. The inscription of this monument I omitt as being in Rom: antic. adjoining to this monument is a square oblong area compassed with a stone wall having 4 gates in the middle of the 4 sides, this same say was an old borgo, others the praetorian camp.

A slight shot or two beyond is the foundation or ruines of another round monument like the Capo de bove. On this side fast by S' Sebastians is the Circus of Caracalla part of the walles whereof are still standing, so that a man may see the just shape & proportion of it round about. Within the walles all along were set (I suppose sepulchral urnes) or great pots made up in the very wall. Out of this Circus was taken the obelisk erected in the Piazza Navona by Innocent X. I was told that it was once bought by the E[arl] of Arundell. At the End of the Circus next to S. Sebast: is the ruines or walles of a square brick building, which some say was the Pretorian lodgings. S. Sebastians is no
great church, in it we saw some reliques. viz. the stone on which are the prints of our Saviours feet, left on it when he appear’d to S. Peter flying from Rome & some others. We went also downe to the subterraneous grot or catacumbe, so farre as usually men goe entering in at one place & coming out at another. As we returned home we saw the place called Domine quo vadis? where our Saviour mett S. Peter departing from Rome: historiam vide in Rom. mod. This evening we saw the Q. of Sweden, being present at her musick. In this room were more naked & lascivious pictures then ever I saw in any one room.34

Jan. 1. 1664 S. V. We viewed the Church of S Giovanni Laterano, the prime church of Rome, as appeareth by these verses on the architrave of the Portico.

Dogmate Papali datur & simul Imperiali
Quod sim cunctarum mater caput Ecclesiarum &c

which you can have in Roma mod. Heer we saw in the Sagrestia the Keyes which are given into the Popes hand when he takes possession of the sea. The chalice in which S. Peter is said to have consecrated or celebrated the Sacrament, it is like our silver drinking bolles for beer in England, & made of tin, broken or gapped on one side. The pax of Constantine it’s set with precious stones. We saw also 3 chaires,35 two of them of a red stone (not porphyry) of one entire piece, the seat of them had a hole like the seat of a close stool & besides a cut or nick from before to that hole. These chaires some fancy were made to search the Pope at his election whether he were a male or no, because of the accident of Pope Joane. He that shew’d them to us told us, that it is thought they were chaires used in the bathes, to sit & take the steam of hote waters; & not to set the Pope in, & that the 3rd chayre, which stood thereby made of white marble & having a Lion on each side it without any such hole or cut in the bottome was the true chaire wherein the Pope was placed when he was chosen. The Monument of Helena the Empresse stands at one end of the portico of this Church, it is a vessell of porphyry with a cover, & engraven with horsemen. This Church (as it stands now) is for greatnesse & beauty next to S. Peters, the best in Rome. it hath five naves or bowes, the top of the middlemost is richly gilded. Heer are the monuments of many Cardinalls & some Popes.36

The monument of Laur. Valla & divers others in the repairing or rather reedifying of the Church were thrown down & defaced. There are still remaining The monument of Pope Silvester with many riming verses upon it.

Jan. 1. 1664. S. V. At Rome the weather was very sharpe, there being a cutting wind which froze the ground hard where ever it came. Munday Jan. 2 there fell a little snow in the morning soon after Sun-rise, which soon melted & a plentifull rain succeeded. All this week the weather continued very sharpe & cold, notwithstanding it did almost constantly rain. On Friday Jan. 6 in the afternoon the wind blew a cold blast & we had some little hail. Saterd. 7 in the morning the snow covered the ground. Sund: 8. again there fell snow in the night which covered the ground. In the middle of this week notwithstanding the excessive cold we had some thunder.

On Wednesday Jan. 4. We saw the palace of the Prince /p. 29/ Pamphyllo on the Piazza Navona where [...]37 of pictures of the best masters, among the rest [we] took notice of Cains killing of Abell of Albert Durers, & another piece of the same hand wherin are painted 2 Doctors with money on a table by the [...] & bookes lying on a shelve. In this palace is [a] very handsome gallery, adorned with pictures on all sides, of the best artists.

Thursday Jan. 5. we saw the Villa Aldobrandina, & in the garden the so famous ancient picture in fresco which is punctually described in the Gallerie Romane.38 Several pictures & statues there are in the little palace there, which are worth the noting.

Friday Jan. 6. We saw the Vatican palace, & therein we remarked the Sala Clementina described in Roma mod. The 3 roomes in the old palace painted by Petrus Peruginus,
Raphael Urbin &c. One with the story of Constantine & another with some stories of the bible &c. The gallery wherein are curiously painted at large in maps all the Countreys of Italy. The Sala regia, the Chappell wherein is Judgement of M. Angelo. The Conclave; the place where the Pope washes the Pilgrims feet, & where he serves them at the table. The place where he gives audience &c.

This day also we saw the Castle of S. Angelo well stored with guns & ammunition. The outmost line of this is a pentagon having a fort at each angle: within that is a square which hath at each angle a strong fort, this stands at a great heigt above the outmost line: then you ascend the round moles a great height above the innermost line. The walles of this are of a mighty thicenesse, & on the top you may walk round under shelter, & round about stand store of great guns. In the middle of this round there is another square raised up a great deal higher, on the top of which stood a mast bearing on the top of that the 7 hilles, & the Angell, but this mast was struck with a thunderbolt & part of it burnt as may be seen for there it lies on the castle & after that set up no more. Heer are 2 faire heads in white marble of Adrian & Antoninus Pius.

Various reasons may be suggested for the divergence between these lengthy entries and the text of the published Observations. One is that a small amount of the material was redistributed thematically, because in the book Ray dealt with villas and the like as a group rather than piecemeal as they were visited (although he merely refers to the Villa Aldobrandina, for instance, in contrast to the details given here). On the other hand, what we have here seems much more like a spontaneous travel diary with its dated entries, including the brief weather diary for the first few days of January 1664/5, in contrast to the more generalized account included in the published Observations. It is also worth noting that Ray seems to have made a conscious decision not to deal in his published book with ‘palaces and public buildings’, evidently including churches, ‘it being needless to trouble the world with what hath been already published in other books’, and it is tempting to argue that he might have been feeling his way towards a new genre of travel literature focused on topics likely to appeal to naturalists like himself. Yet this did not prevent him from including a very detailed account of the classical antiquities of the city, as it had not prevented him including details of inscriptions, galleries and the like in Florence. Indeed, Canon Raven’s remark on the Baedeker-like quality of Observations may reflect an impulse on Ray’s part to serve what he perceived as the requirements of his readers, which evidently led him to include material that had not been in his original notes at all, as is suggested by his citation of Richard Lassels’s Voyage to Italy (1670) on the dimensions of St Peter’s.

In the case of the ecclesiastical sites involved, both here and in the passages dealing with Padua quoted earlier, it is possible that Ray had ulterior motives for not publishing much of the detail in his notes. In part, this was perhaps because many of the claims that were made about the links between sites and objects and figures such as St Peter and St Paul are reported with perceptible scepticism. In addition, some of the spiritual benefits said to derive from devotions there must have offended against his Protestant sensibilities, as may some of the information about the lavish decoration of these shrines and even the connoisseurial details of some of the artworks he recorded (the same is perhaps also true of his allusion to Queen Christina’s lascivious pictures). Yet, if such considerations affected his decision not to include these particular passages in the printed text, this did not prevent him from including a comparable mixture of Catholic claims sceptically reported together with details of lavish artworks elsewhere in Observations, for instance in his account of the
shrine at Loreto.\textsuperscript{43} In fact, it seems likely that there was an element of randomness in what did and did not get into the printed volume, exacerbated by the need to curtail miscellaneous detail; this perhaps concurred with the previous consideration as far as the details of religious orders in Rome were concerned, and it may also have led him to omit transcripts of inscriptions both at Rome and at Augsburg and elsewhere.

Lastly, as already noted, one passage in the newly discovered notebook that has no parallel at all in Ray’s published Observations is his account of his visit to the Collegio Romano to see the collection of Athanasius Kircher. Quite why Ray felt it inappropriate to include this is unclear. In contrast to the situation with Moscardo’s museum in Verona, where Ray excused himself from a fuller account on the grounds that a published catalogue existed, this did not apply to Kircher’s at the time when Ray’s book was published in 1673: Giorgio De Sepi’s catalogue of the Musaeum Kircherianum did not appear until 1678.\textsuperscript{44} Possibly more to the point was a disinclination on Ray’s part to propagate the self-promotion that was so central a feature of Kircher’s attitude to his museum and its popularity with visitors: ‘No foreign visitor who has not seen the museum of the Roman College can claim that he has truly been in Rome’, Kircher boasted, and it is worth noting that Ray’s later comments on Kircher were somewhat disparaging, echoing those of other English virtuosi of the period.\textsuperscript{45} Be that as it may, here for the first time in print is what Ray actually wrote when he visited the museum in December 1664:

In the Musæum or gallery of Athanasius Kircher in the Romane College at Rome.

We observed A Round case of desks full of ancient coynes. This case is of the fashion of an hour-glasse, moving upon 2 poles at the center of the 2 wheels at the ends into which the Desks are fix’t, so, that turning round, every Desk (on which the medals lie) is kept parallel to itself alwaies. The like engine I have seen in other places to lay bookes on, convenient for them who are to use many bookes at the same time.

An Organ moved by clock-work, in which besides by the air enclosed was represented the singing or notes of severall birds: & on the top a stream of air forced out so strongly as to support a ball of past-board playing upon, such as we saw at Frascati

A little wooden crosse made up of 300 little pieces put together without nail or peg. The modells of all the obelisks about Rome with their hieroglyphicks in wood.

A Deceptio visuds it is nothing but a rod of metall of a spirall conicall figure, or (to expresse it better) so standing as if it had been,) wound spirally on the superficies of a cone. This if you can turne it one way seemes to descend, if the contrary to ascend. for this conicall spirall is hanged upon its Vertex.

A lizzard cut out of thin pastboard with a needle conceald withinside it, which moves up & down by a loadstone.

A Loadstone moving a steel through 4 medium’s viz. wood, glasse, water & lead. The rib & tail of a Siren, which Kircher saw in Malta (as his companion told us) The tail is broad like the Rostrum of the Serra marina, but without teeth: long, & of the fashion of a two-edged sword but broader.

A piece of a China-birds nest; it lookes like a kind of gumme or Camphire, & hath a pleasant smell.

Hair-ball or stone out of an oxes stomack.

A large Calculus humanus taken out of the bladder of one of their fathers of 11 ounces weight.

Three or 4 skins of Corvi Indici (as he called them) it’s a large foul, & all the feathers are of a light crimson very pleasant colour.
A case of Japan knives.

A Japonian sword wherewith severall of their Fathers were martyr’d.

A pair of China shooes. They were made like our slippers only without heeles (I mean higher than the rest of the sole) the soles were of small cord or packthread woven close. It seemes persons there are distinguished by their shoes; & in doing reverence they doe not uncover their heads but pluck of their shooes.

The head of an Oracle, or an Engine to heare what you say & give you answers. There is a figure like a statue, in the breast of which is a hole, whereto you lay your eare & from that hole goes a spirall channell, made like a trochus-periwinkle which some call unicorns-horns, at the great /p. 18/ end whereof at a great distance from you he speaks or whispers (&) you heare him, though he whispers very submissely. This Engine is described & figured in his Musick.

An Engine to shew how fountaines though the water that feeds them comes from the sea, may spring up in the top of mountaines.

A Clepsydra of an odde fashion.

An Engine that out of the same mouth of an icuncula spouts out 4 severall liquors as you turn 4 several cocks in the legs of it.

An Engine attempting a perpetuall motion, by water falling from a cistern & turning a wheel, & this wheel moving the sweak of a pumpe which again forces the water up into the Cistern.

Two Engines for a perpetuall motion like to Septala’s.47

An Engine wherein a serpent is made to spew out water & a bird to suck it up.

Another artificiall fountain to spout out water.

Diabolus in carcere: An icuncula made like the picture of the Devill & put into a cylinder full of water, so contrived, that by pressing the water with your finger, you can make the Devill either sinke downe, rise up, or stand still in the middle or any other part of the glasse-cylinder as you please.

An woorden circle or broad hoop with lead put in one side which will wave to & fro on an enclining plain, & not descend, & which if it be turned over, will move a great way with a great force.

Small Indian images, like such as our pedlars sell for children, made of painted wood.

The picture of P. Adamus Schall a Jesuite native of Germany: now in China, & in great favour with the King, who admitts him to all his counsells & does nothing without him.48 He carries on his breast a scucheon with the imprese of a white bird in it, signifying his dignity.

There is also the picture of the King. he weares a red cap on his head /p. 19/

There were also the pictures of 2 other Indian Kings viz. [left blank in manuscript]

Kircher at present is translating into Latin an Arabick manuscript De Simplicium medicamentorum facultatibus. His book titled Mundus Subterraneus is now in the presse. The Engines which we saw in his musæum are all figured & described in his Ars magnetica. We were told that Johnson of Amsterdam had given 2000 crownes for to have the printing of all his workes: Blaeuw offered 1500.

Here, as elsewhere, there is a significant amount of overlap between the objects and topics described in Ray’s account and those dealt with by Skippon in his published ‘Journey’.49 On the other hand, neither can derive from the other, because they are differently worded and appear in a different order, and both note objects that the other ignores, in Skippon’s case including money from Canada, edible birds’ nests, and a microscope revealing the nature of sand. This may simply reflect the different interests of the two men or it may throw light on the nature of the tours that visitors were given of Kircher’s collection, with
certain things being shown to them but other items attracting their attention in a more random manner (it is perhaps worth noting that Ray refers both to ‘he’, presumably Kircher himself, and to information given by ‘his companion’).50

In conclusion, it is worth considering the significance of the rediscovered manuscripts for our understanding of the prehistory of the text that was to materialize as Ray’s Observations of 1673, which has hitherto been taken for granted as an artefact in its own right. They thus shed additional light on the ‘notebook culture’ of scientific virtuosi of Ray’s time which has recently begun to attract attention, and various observations may here be made.51 The first is that the two manuscripts in the Hampshire Record Office can only represent a fraction of the manuscript material that Ray must have generated during his continental tour. That this is the case is illustrated by the second paper published by Samuel Dale in Philosophical Transactions, giving observations that Ray made in Rome of the comet of 1664, accompanied by a set of detailed illustrations.52 Although the original drawings from which the engravings were made survive at the Royal Society, the accompanying text must have come from a further manuscript that is apparently no longer extant.53 We also know from a letter from Ray to his correspondent, Tancred Robinson, of 29 April 1685 that ‘all my Notes of high and low Germany were unfortunately lost’, and in a further letter of 15 April 1692 he notes how ‘I find among my Papers a short Description I took of the Skeleton of the Elephant, in the Duke of Florence’s Musæum’, and this, too, no longer survives.54 Hence the hundreds of pages that Observations comprises must be based on dozens of volumes like the two that have now surfaced. Indeed, while this article was in preparation, a further such document has come to light in the form of a copy of the printed catalogue of the botanical garden at Padua to which Ray has added detailed manuscript notes on the flora of different parts of Italy.55

What the Hampshire Record Office manuscripts also suggest is that the published book did not simply represent a transcript of a sequence of manuscripts kept in chronological order, but that during the tour Ray compiled various records in parallel. Thus 19M59/6, the volume here dealt with first, leaps straight from material concerning Augsburg to information on Venice and Padua, despite the fact that Observations records visits to Nuremberg, Altdorf, Regensburg and Vienna in between. It seems likely from the evidence both of this and of the other volume, 19M59/5, that each notebook comprised a range of material included in roughly chronological order, in the latter case including a draft letter and memoranda on specimens as well as general observations on the city and dated sightseeing notes. It is similarly interesting that 19M59/5 overlapped in date with Ray’s record of the comet seen at Rome as published in Philosophical Transactions by Samuel Dale, of which the text is lost although the illustrations survive, because the observations are dated between 20 and 29 December 1664. Clearly, Observations must have been constructed through a lengthy process of selecting and then cutting and pasting together such disparate material, a process of which we gain a tantalizing glimpse from the surviving manuscripts analysed here. Comparison between the material from them that has been quoted in this article and comparable passages in the published volume also suggests that in the course of recycling his notes Ray almost certainly reduced their spontaneous quality, making it all the more regrettable that so few of his original notes survive. Hence these long-lost manuscripts not only provide some fascinating new details about Ray’s time in Rome and elsewhere but also give us a crucial insight into the making of one of his books.
John Ray in Italy

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NOTES


2 The text appears on pp. 359–736. See Sir Geoffrey Keynes, John Ray: a bibliography (Faber & Faber, London, 1951), pp. 33ff., where details are given of Ray’s book, including the 1738 reprint of it; Skippon’s account is referred to on p. 34 but only the 1744–46 edition of the Churchills’ Collection is there cited (a reprint with the same pagination as in the edition of 1732). In Observations topographical, moral, & physiological; made in a journey through part of the Low-countries, Germany, Italy and France (for John Martyn, London, 1673), sig. A2v, Ray notes Skippon’s assistance in providing ‘Notes and Communications’, but the two men’s accounts are substantially different throughout; see further below.


4 See Raven, op. cit. (note 3), pp. xiii, 204–206 and 481.


7 Phil. Trans., 25, 2282–2283 (also printed in Gunther, op. cit. (note 5), pp. 108–109).

8 Derham, op. cit. (note 1), pp. [103]–319. On an unpaginated leaf preceding the title the following ‘Advertisement’ appears: ‘As, from the foregoing Life of Mr Ray, the Public might expect more of his Itineraries than what are here published; the Editor begs leave to observe, that those which are omitted are nothing more than some short Hints by Way of Diary; the Author’s principal Observations being, with no small Difficulty, transcribed from his Notes, and introduced (as the Reader will find) in the Course of this Work.’ Whether this is a reference to the MSS that form the subject of this article is unclear; see further below (note 15).

9 See http://www.livesandleaders.ac.uk/projects/hooke-folio-online.

10 Bonhams catalogue, Tuesday, 28 March 2006, Printed books and manuscripts: science and medicine including the Hooke Folio, lot 186. The catalogue entry elucidates the divergences between the published version and the MS text. Lot 188 in the same sale comprised further relevant material, including a letter from Dale to Derham describing the MSS in his
possession and Derham’s ‘Notes, for Mr Ray’s Life’. I have been unable to establish the present whereabouts of these manuscripts.


12 See A Brief Memoir of the Families of Prideaux of Devon and Cornwall, and of Brune of Hants and Dorset. Reprinted from Sir John MacLean’s History of Trigg-Minor (printed for William Pollard, Exeter, 1874), p. 41 and passim. The British Library copy of this work, 9907.g.19, has extensive manuscript annotations, from which some of this information has been taken.


14 See notes 29 and 30 below.

15 The chief source here is Scott’s letterbook from 24 August 1757 to 18 March 1758, now Bodleian Library, Oxford, MS Eng. e. 3655, to which my attention was kindly drawn by Scott Mandelbrote. For the quotation see p. 265. See also pp. 118–121, 132–133 (concerning the pagination, though it is also worth noting that the pagination of 19M59/5–6 is in the same style as that of the letterbook), 156ff. and 264ff., which include transcriptions of some of the material published in Select Remains.

16 For Lady Prideaux, née Louisa Bodle, see Brief Memoir, op. cit. (note 12). Her descent is confirmed by G. E. Cokayne, Complete baronetage (6 volumes; William Pollard, Exeter, 1900–09), vol. 1, p. 201; for the erroneous statement that she predeceased her sister, see Victoria county history of Essex, vol. 4 (Oxford University Press, London, 1956), p. 32, quoted on p. 21 of the 2006 Bonhams catalogue, op. cit. (note 10). For the MSS that went to the Enys family, see Bonhams catalogue, The Enys collection of autograph manuscripts, Tuesday, 28 September 2004, lots 294–307. The introductory note on p. 6 does not mention the Prideaux-Brune connection and speculates about a possible descent through the publisher, William Innys. However, for the statement that the Ray MSS passed from Scott to the Prideaux family, that they were discovered by Charles Prideaux-Brune among the papers of Lady Prideaux at Netherton in about 1880 and were given by Prideaux-Brune to J. D. Enys in 1884, some then being sold to the Botanical Department of the British Museum, see Gunther, op. cit. (note 5), p. vii; this information is derived from a note by G. S. Boulter, J. Proc. Essex Field Club 4, clxiv (1885; published in 1892). The Ray letters at the Natural History Museum now comprise Library & Archives, Botany Library, MSS RAY. Their purchase in 1884 is confirmed by an extract from the reports of the Botany Department bound in at the start of the volume and three letters from J. D. Enys bound in at the end. The report by the then Keeper of Botany, William Carruthers, dated 4 July 1884, is to be found in DF403/7, Botany Reports to Trustees, with Official Letters and Other Documents, 1884–86. However, this unfortunately says nothing about the earlier history of the MSS acquired from Enys. For help with my investigations at the Natural History Museum, I am indebted to Charlie Jarvis, Daisy Cunynghame, Andrea Hart and Hellen Pethers.


18 Pages 10 and 11–12, with details of inscriptions in between (the insertion in ll. 5–6 appears in the margin). Cf. Ray, Observations, pp. 205ff. (including one overlapping inscription, that of Veslingius, on pp. 214–215); Skippon, op. cit. (note 17), pp. 523ff., with an account of the churches overlapping with that in 19M59/6, including transcripts of many of the same inscriptions; in addition, the Greek inscription in Venice appears in ibid., p. 511. Throughout this article, manuscripts are transcribed according to the method expounded in Michael Hunter, Editing early modern texts: an introduction to principles and practice (Palgrave...
Macmillan, Basingstoke, 2007), ch. 6, and exemplified in Michael Hunter et al. (eds), *The works of Robert Boyle* (14 volumes; Pickering & Chatto, London, 1999–2000) and *The correspondence of Robert Boyle* (6 volumes; Pickering & Chatto, London, 2001). In brief: original spelling, capitalization and punctuation are retained; standard contractions (such as the thorn with superscript ‘e’ for ‘the’) have been silently expanded. Underlining in the original has been shown by the use of italics. Original pagination has been indicated by the insertion in the text of ‘p. 16’ within soliduses where each page of the manuscript text begins. Words or phrases inserted above the line in the original manuscript have been denoted (thus); deletions are recorded in endnotes. Editorial insertions have been denoted by square brackets. It is worth pointing out that Ray often uses the symbol ‘//’ to denote a new paragraph, and this instruction has been silently implemented here.

Page 12, followed by details of inscriptions on pp. 13–15. After this, pp. 16 and 18–20 are blank and p. 17 contains only a few jottings. It should be pointed out that for reasons of space I have not attempted to annotate Ray’s account of churches, antiquities and other sights at Padua and around Rome; to a large extent he covered similar ground to that traversed by John Evelyn 20 years earlier, for a fully annotated account of which see E. S. de Beer (ed.), *The diary of John Evelyn* (6 volumes; Clarendon Press, Oxford, 1955), vol. 2, *passim*.


Page 21. The passage is as follows:

Molinetti unus e` professoribus Anatomes & chirurgiæ Patavii, solitus est quotannis ostendere acum in medio calculi, seu acum calculo incrustatam e ` muliebri vesica exemptum. Dixit etiam Marchetti se in muliebri vesica acus etiam invenisse: Fæminæ sc. sua pudenda solent scalpare & fricare acubus, unde in vesicam casu prolapsa sunt. Dixit se insuper inter intestininum, rectum & valvam sæpius invenisse foramen, a` fricatione factum.

Mulieres Patavinas â 14 anno ætatis fere ` omnes corruptas, nec inter tota quæ dissecuerat cadavera virginem potuisse invenire: que enim o sunt vitiatæ Hymenem tunicam sibi ipsis perfringunt & dilacerant.

Pages 23–43 (p. 40 blank), transcribed by Dale in its entirety (although with some mistranscriptions, while the opening date is wrongly given as 1683); see note 5. For Molinetti and Marchetti see Raven, *op. cit.* (note 3), pp. 314, 373 and 475n.; Domenico Bertoloni Meli, *Mechanism, experiment, disease: Marcello Malpighi and seventeenth-century anatomy* (Johns Hopkins Press, Baltimore, MD, 2011), pp. 36–37.


Raven, *op. cit.* (note 3), p. 373, where he also notes how the account of the capercailzie appears in Willughby’s *Ornithology*.

Page 44 (pp. 45–46 are blank); cf. Ray, *Observations*, pp. 149ff., which lacks such an account, though it *does* have a detailed account of soap-making, pp. 202–204. Cf. Skippon, *op. cit.* (note 17), which has a parallel account of the operation at the mint house on p. 518.
See Thomas Ballard, Bibliotheca Rayana: or, a Catalogue of the Library of Mr John Ray (n.p., London, 1708), p. 19; Ray’s copies were respectively of the 1652 and 1654 editions.


Page 14. For Corneli, see Raven, op. cit. (note 3), pp. 134 and 159, and Derham, Philosophical Letters between the Late Learned Mr John Ray and Several of his Ingenious Correspondents (printed by William and John Inny, London, 1718), pp. 9–10. The original of the letter published by Derham survives as item 2 in MSS RAY at the Natural History Museum (see above, n. 16); as with most of the letters published by Derham, his text is a heavily truncated version, but it is indeed dated 1663, not 1665 as suggested by Raven, and this is confirmed by the position of the Ray–Corneli letter in 19M59/5, which suggests a possible date of December 1664.

Pages 15–16 (epitaphs: in the margin of p. 15 a quotation from Pope has been added in the hand of Scott) and 16–19 (Kircher). Cf. Ray, Observations, p. 348, where the Raphael epitaph is included but not the others, and Skippon, op. cit. (note 17), p. 672 (where they are all quoted, similarly juxtaposed with an account of Kircher’s museum).

On p. 24 is a further marginal note by Scott, part of which collates information from the 1738 edition of Observations, Travels through the Low-countries, Germany, Italy and France (2 volumes; printed for various publishers, London, 1738), vol. 1, p. 348 (the equivalent passage appears on p. 406 in the 1673 Observations).

Ray, Observations, pp. 359 and 368. In the case of the comments on the climate, they were shorn of their linkage to specific days. For chestnuts see p. 405, part of the general account of Italian diet on pp. 403ff.

Pages 19–22 and 26–29. For Ray’s brief account of Frascati and Tivoli in Observations see pp. 366–367. For scattered references, for example to the obelisk once in the ‘Circus of Caracalla’ (that is, the Circus of Maxentius), see ibid., p. 355. For Skippon’s account of what transpired between 26 December and 5 January, with some overlap with Ray’s and some divergence, see Skippon, op. cit. (note 17), pp. 674–678.

Followed by ‘of’ deleted. In ‘stone wall’ on p. 21, a second ‘o’ is deleted in ‘stone’.

At this point on p. 22 the general comments on Rome follow that have already been dealt with, ending on p. 25. The dated sightseeing notes quoted here recommence at the top of p. 26 and continue to the end of the extant MS.

Marginal reference: ‘these chaires stand in an old cloyster on the S. side of the church.’

Here details are given of the inscriptions on the monument of Pope Alexander III and the statue of Henri IV of France, pp. 26–28. These are omitted here.

At this point the manuscript is damaged and a few words are missing.

Ray evidently here cites a work published in Rome in 1664, Nota della Musei, librie, galerie et ornamenti di statue e pitture ne’palazzi, nelle case, e ne’giardini di Roma, of which a copy appears in his library catalogue (Ballard, op. cit. (note 26)), p. 20, described as ‘Nota della Musei, Rom. 1664’. See also de Beer, op. cit. (note 19), vol. 2, p. 284n.

Ray, Observations, pp. 366 and 368.


Ibid., p. 365.

Ibid., p. 372ff.

Ibid., p. 219; for De Sepi’s catalogue of Kircher’s museum see Findlen, op. cit. (note 20), esp. pp. 46, 85–87, 93 and 119. For a facsimile, see http://warburg.sas.ac.uk/pdf/cgi778kirch.pdf.
Quoted in Findlen, *op. cit.* (note 20), p. 130. For Ray’s later comments see Derham, *op. cit.* (note 28), pp. 29 and 59; Gunther, *op. cit.* (note 5), esp. p. 211: see also *ibid.*, pp. 113 and 295. For the views of other English virtuosi, see, for example, Derham, *op. cit.* (note 28), p. 17; Illiffe, *op. cit.* (note 3), pp. 367–368.

Altered from ‘calles’.


A reference to the missionary Johann Adam Schall von Bell (1592–1666).

Skippon, *op. cit.* (note 17), pp. 672–674.


See Yeo, *op. cit.* (note 23), passim but esp. pp. 230ff. on Ray, Willughby and Lister and the notes kept on their travels.

Ray and Dale, *op. cit.* (note 5); see also note 5 above.

Royal Society MS 131, nos 126–132.


See Chelsea Physick Garden C2/40, a copy of Giorgio delle Torre, *Catalogus plantarum horti Patavini* (typis P. Frambotti, Padua, 1662), with extensive MS notes by Ray both at the beginning and at the end of the volume. This item was discovered by Daisy Hildyard, and I am indebted to Mark Greengrass for alerting me to it and for showing me digital images of it.