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THE JEW OF CRANE COURT: EMANUEL MENDES DA COSTA (1717–91), NATURAL HISTORY AND NATURAL EXCESS

G. S. Rousseau
De Montfort University, Leicester

David Haycock
Wolfson College, Oxford

> "...the Little Jew's being over busy ..."
> (Charles Lyttleton to Dr Thomas Birch, 28 May 1750, BL Add. MS 4312, f. 286)

In a previous paper we attempted to develop upon recent re-appraisals of the mid-eighteenth century status of the Royal Society of London by examining the career of its much overlooked president, Martin Folkes.[1] In that study we focused on sharp criticisms made of his presidency by his former friends John Hill (1714–75) and Dr William Stukeley (1687–1765); and we referred to a third man who actively participated in this circle of natural historians, Emanuel Mendes da Costa. In the late 1740s he too was on cordial, even close, terms with Folkes, Hill and Stukeley but, like Folkes, the biographical details of his life have largely been overlooked in relation to his professional career.[2] Elected to a Fellowship of the Society in November 1747, he surrendered it in February 1763 when elected to succeed Francis Hawksbee Jr as the Society's clerk, librarian and museum keeper. Da Costa was an avid collector of fossils (anything dug up from the earth, including shells and minerals) and had an extensive circle of correspondents around Britain and Europe to whom he was widely known for his knowledge of natural history. A friend told da Costa in 1752 that he had visited Buffon in Paris, "at whose house your name was mentioned, and some other handsome things said ...".[3] And Linnaeus was also informed of da Costa in 1755 by the Danish mineralogist and zoologist Dr Peter Ascanius, who was visiting London. Ascanius explained:

> Da Costa is a jew, who has long laboured at a history of fossils, in English. He certainly possesses an excellent collection of minerals; or rather, I should say, he did possess it; for he is at present in prison for debt. But his collection is in the hands of a friend, who allows him a partial use of it. Da Costa is certainly well versed in this study, and will make us acquainted with more species than any other writer has done.[4]

After da Costa's letter of August 1757 in which he informed them of his recently published *Natural history of fossils* was read out at the Royal Academy of Sciences at Upsala, Linnaeus wrote back:

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> Your unparalleled knowledge and rare learning have excited so much esteem and respect in all those who were present, that I am commissioned by them to testify to you how highly they value your communications. We had long ago heard, by publick report, of the publication of your important report, and were the more desirous of seeing it, that we might profit by your information.... I, who am occupied in preparing the 10th edition of the *Systema Naturae*, with numerous additions, cannot dispense with your work, as I intend to quote it, with due commendation, throughout the fossil kingdom. I therefore earnestly intreat you to forward it to us as soon as possible, I will take care that your present shall be received with due respect, and gratefully acknowledged.[5]

When the book was presented to the Academy, Linnaeus wrote informing da Costa that "it was generally admired for the abundance of its material; the dexterous selection of, often very intricate, synonyms: the highly finished descriptions and excellent remarks; and, finally, for the new method of arrangement, which is altogether new and singular".[6] Though his efforts to become elected to the Swedish Royal Society came to nothing, by 1761 da Costa could inform an old overseas friend, with some justification, "I continue my studies in Natural History very assiduously, and am very well known, and, thank God, much esteemed by the lovers of that science. I have made vast collections; but my Collection of Fossils is reckoned equal, if not superior, to any private one in England."[7] Equal and superior it was, and in 1760 at the moment of the accession of George III da Costa was an internationally known scientific figure whose name spread across several time zones. His boast is worthy of exploration for its veracity, as is his unusual life for its revelations about Enlightenment science, especially the vogue for natural history. For da Costa might have become an English rival for Buffon and Linnaeus; and we do not think the question why did he not, to be spurious.

Why indeed does his name now produce rarely more than a footnote; at most a paragraph in the history of mineralogy and geology? We explore the possibilities without losing sight of our protagonist's personal psychology: particularly the scandal that exposed "the Little Jew" of Crane Court to permanent disgrace and drew a pall over his professional activities. And we do so primarily through a biographical approach on the rationale that biography satisfies needs absent from much contemporary professional history: not merely the focus on a single life and its inevitable psychological complexities, but by removing the cumbersome complications that lumber the often ponderous accounts of scientific institutions and professional societies like the Royal Society. For academic history in our time has become so weighed down by disciplinary specialization and ideological interest that individual action, causal agency, and psychological motive seem to have been lost. The biography of da Costa's mental landscape also provides a means — if not an entirely satisfactory academic methodology for those professional historians of the Royal Society exclusively interested in its fortunes and internal warfare apart from concern for the men in action who shaped its events — to explore the signs of a damaging Enlightenment culture of excess violating the best balances and

norms of that era, excess grounded in shifting patterns of material consumption and the psychological greed so often accompanying it. Paradoxically, the same epoch that cultivated symmetries of personal and public activity, of reason and the passions in all human affairs, produced grasping creatures like da Costa who could not deter the mania or kick the habit that practically ruined him. Some would say "*did ruin him*".

BIOGRAPHY

Little is known about da Costa's early life or education and, despite the vast archive of extant correspondence, little of significance can be gleaned about the first two decades of his life. He emerges from relative obscurity and, after a brief moment of reknown followed by ignominy, returns to it. A query from an unnamed conchologist in *The gentleman's magazine* in 1811 sets the scene. He asked for "any account" of da Costa and J. E. Raspe, "two eminent Natural Historians, well known as Writers in the 'Philosophical Transactions,' and by other valuable publications. Are they still living? or when did they die?"[8] This produced a response in the following edition from a "J. H." of Conduitt Street, London, who owned a manuscript drawn up by da Costa. For in fact, the Mendes da Costas were a Portugese Jewish family well known in eighteenth-century London. According to this MS, da Costa's grandfather Moses, alias Philip Mendes da Costa, had lived at Rouen, Normandy, and had moved to England in about 1692, dying in London in 1739/40. Here he had been a main figure of the small Sephardic Jewish community. His maternal uncle Moses, alias Anthony, became a director of the Bank of England, and died on 3 March 1747. Emanuel's father Abraham, alias John Mendes da Costa, was born at Rouen, Normandy, in 1683 and came to England *c*. 1696. He married Emanuel's mother, Esther, alias Johanna da Costa, on 19 August 1702. Jacob, alias Peter, was born 24 February 1707 and died at Altona, near Hamburg, in April or May 1780. Emanuel himself, the eighth of their ten children, was born on 24 May 1717 Old Style, or 5 June New Style.[9]

The Jews had officially been expelled from England in 1290, and were not officially readmitted until Oliver Cromwell's tacit directive in 1656. This reflected a renewed spirit of millenarianism in England that demanded the conversion of the Jews as a prerequisite for the Second Coming. Todd Endelman in his study of modern Jewish history has calculated that by 1690 there were about 800 Jews in London, most of whom were Sephardim, many fleeing the Inquisition in the Iberian peninsula. By 1720 there were about 1,000 Sephardim, and by 1750 about 2,000 out of a total Jewish population of between 7,000 and 8,000.[10] Endelman also notes that unlike Jewish immigrants from central and eastern Europe, "the Sephardim brought with them an openness to non-Jewish learning and mores that was a product of their particular historical experience.... In matters of language, costume, deportment, and taste, the Sephardim of early-modern Europe were not markedly dissimilar from their neighbors." They were able to enter the mainstream of English society with "relative ease".[11] The da Costa family were specialists in

diamond and coral trade with India, Iberia and Latin America, and the trade in bills of exchange, and became wealthy figures in the London mercantile community. Emanuel's cousin Catherine (Kitty) da Costa (1709–47) was a case in point. She acquired a substantial fortune through her first marriage to Joseph da Costa Villareal, who had escaped the Inquisition in Portugal and arrived in England in 1726 as the country was adjusting to the economic aftermath of the South Sea Bubble. Very shortly after his death in 1730 she became engaged to Emanuel's brother, Peter Mendes da Costa. When Kitty subsequently repudiated their engagement Peter pursued unsuccessful suits in the Arches Court of Canterbury and the King's Bench for breach of promise. It would later be said of Emanuel that he "was as zealous in his work of fossils as his elder brother was in getting of money which ... was saying a great deal of him".[12] Kitty subsequently married a Christian, William Mellish, was baptized, and had her two children from her first marriage baptized. Helped by her fortune her second husband became an MP for Retford, Nottinghamshire (1741–51) and her daughter married the heir of the first Viscount Galway in 1747, becoming Viscountess Galway in 1751.[13] Emanuel himself married twice, the first time to his cousin Leah del Prado at St Benet's, Paul's Wharf, in 1747. It is possible she had been baptized; she died in 1763, and in 1766 (before his crisis) he married Elizabeth Skillman, who was not Jewish, in what was possibly a Christian wedding.[14]

In the summer of 1748 he accompanied his brother-in-law, Abraham del Prado, to Dutch Brabant, where Abraham had won the Treasury contract to act as "Proveditor General" to the British army. But this seems to be the only business he conducted with his banking and mercantile relatives.[15] His father despaired of any of his sons becoming successful; in his will written around this time he complained that both Emanuel and his brother David "have done very bad", and that all told "you were all young and healthy and no father mother nor sister to maintain but your own sweet selves and that you would not do".[16] By April 1753 Emanuel had drawn up a note acknowledging an accumulated debt of £168 to his friend, the wealthy London Quaker physician Dr John Fothergill.[17] In 1754 he would be imprisoned briefly for debt, probably not to the latter, for Fothergill remained a generous benefactor. In 1756 da Costa told Thomas Knowlton, head gardener and botanist on the Yorkshire estate of Richard Boyle, the influential third Earl of Burlington,

> Many Noblemen & Gentlemen my friends who are lovers of Literature finding their efforts in vain to obtain me a place in the British Museum wch they flatterd me I was capable of and knowing my late circumstances have generously & humanely agreed to raise by subscription a sum of money (what they can acquire) to subsist me till such time I could reap the benefit of my work & that generous friend of mine Dr Fothergill is at the head of them each has subscribed what he pleases[.] now if it is your pleasure ... I shall be obliged to you if you will join what you think proper in the subscription for my benefit which will add to the many friendships already received from you[.][18]

After this assistance, however, he still needed further support from his "friend and patron" Fothergill. In August 1761 da Costa was attempting to mortgage his fossil collection for £350 to him on four years' interest. By the June of 1762 he had sold some five hundred specimens, and was offering the remaining 3,800 items to Fothergill outright for £300. Though da Costa wrote that "if they were not my own & I had monies I should immediately purchase them", Fothergill declined the offer. Though a Quaker and a benevolent patron to many, Fothergill's real enthusiasm was for botany, not minerology.[19] Da Costa's fortunes had improved by the following year, however, possibly through an inheritance from his father, who died in January 1763. He had in the late 1740s expressed an interest in the lead and coal trades, though this does not appear to have borne fruit. He had written to a Derbyshire friend in 1746 and 1747, expressing his interest in lead and coal mining, "for I long to be dabbling".[20] Mining was the one part of da Costa's studies that might offer real utility, both to himself financially, and to natural historical studies. He told Thomas Pennant in 1752,

> I am very fond (& think it is a very essential part of the Nat. Hist. of the fossil kingdom & is answerable to the comparative anatomy of animals) of making comparative observations on the Mines of one same metal in different parts of the World[.] it leads us in some measure to discover the structure of our Globe & to deduce Rules in digging or Mining in regard to the alliances of fossil Bodies ... and I doubt not many other such observations may be made on the various parts of the Globe wch must necessarily clear the way to many discoveries wch otherwise the dark recesses of the Earth would hinder our ever attaining.[21]

He explored mines and quarries, and encouraged his friends to do likewise. He also advised them to make contact with the mine and quarry workers who could find samples for them, warning that that "the poor Quarrymen & country people must be rewarded for bringing things or seeking for them[,] it is humanely & morally their due ...".[22] He congratulated Thomas Pennant for making such explorations in person:

> Your excursions are very interesting & entertaining[;] such journeys under ground though not at all pleasant are very profitable & I believe nay I am sure it is impossible to be a true judge or adept in the fossil study without having made such subterranean visits[.] I know I profited more in six months journey into Derbyshire & Cornwall by visiting caverns & mines than I did by study for the ten years before the time I first commenced a fossilist[.][23]

In July 1763 da Costa wrote to William Borlase, asking him if he would be interested in joining him and three other FRS in purchasing shares in a Cornish mining company, for "Mining was never so much in vogue as at present many companies of adventurers are daily formed & most seem to promise success".[24] The other partners he listed in the venture were "Dr." Gowin Knight (1713–72), the

principal librarian to the British Museum (FRS 1745), Dr Matthew Maty (1718–76), under-librarian at the British Museum (FRS 1751), and Mr Benjamin Wilson (1721–88), a painter who also made important experiments with electricity and had won the Copley medal in 1760 (FRS 1751). Da Costa's share in their scheme was worth 2/16th in mining and 2/16th in smelting in the Wheal Kitty and the Wyth mines at Camborne, worth a little over £260. Borlase, who had published a book on the natural history of Cornwall, and whose father-in-law had been rector of Camborne, offered his advice, but declined to participate.[25] This venture, which potentially could have been a huge financial success, appears to have been disastrous. By the mid-eighteenth century Cornwall was the largest copper-producing region in the world, assisted by Newcomen's atmospheric pumping engines. But smelting of copper had never been particularly successful in the county, and by the 1760s as mines were forced deeper in search of more remote resources and pumps reached the limits of their capacity, profit margins fell.[26] In 1766 Wilson was declared a defaulter on the stock exchange, whilst da Costa's sometime patron John Fothergill had to advance Knight "about a thousand guineas" to save him from ruin following "some speculations in mining, more plausible than productive ...".[27] By 1764 da Costa was also "above £150 out of pocket" meeting the costs of the prints for his fossil book, and was once more running into severe financial difficulties.[28] These expenses, the presumed failure of his mining speculations, and his character flaws, led ultimately to his downfall.

Thus despite his schemes and his wealthy relatives and friends, da Costa struggled financially throughout his long life: whilst the first da Costas who had settled in London were good financiers and businessmen, many of their descendants were not. As a reviewer of one of da Costa's books would observe in 1777, the activities of the collector of shells and fossils was "neither easy in the process, nor profitable in the end".[29] This observation could not be more accurate of any one else: da Costa totally devoted himself to natural history, and his life was an endless struggle for money and position. Why it should have been so far more than was necessary is a question we hope to answer.

It is important to understand the social consequences of his birth and religion. His Judaism was not the main impediment to his chosen career. Having been born in England, he did not suffer the same discrimination as other foreign-born Jews, who, like Catholics, could not be naturalized. The Jew Bill in 1753, which — Horace Walpole wrote — would have ended these "grossest and most vulgar prejudices", progressed through Parliament with little opposition until, in the face of a forthcoming election, some "obscure men" rose a popular clamour against it, and it was quashed.[30] This brought Jewish issues to the fore, but appears to have had little impact upon da Costa, and he never mentions it in his correspondence. Whilst we know nothing about da Costa's education, like any other non-Anglican he would have been barred from university, both as a student and as a fellow. An academic career — which may well have best suited his genius — was never an option. But his religion did not bar him from membership of the Royal Society. The

first Jewish Fellow had been elected in 1723, and there were nine Jewish Fellows of the Royal Society in the eighteenth century.[31]

Endelman observes that "Jews who wanted to broaden their cultural and social horizons without formally abandoning Judaism could do so because there was an openness and flexibility in social life that were absent in most other countries where Jews lived. Gentry and aristocratic circles were willing to tolerate the company of unbaptized Jews who were sufficiently wealthy and genteel."[32] When Martin Folkes, then one of the Royal Society's vice-presidents, wrote to da Costa inviting him to the Duke of Richmond's home at Goodwood, West Sussex, in August 1747, he took care to explain that "The Duke being the most humane and the best man living, you need be in no difficulty about your eating, here being all sorts of fish, and every day the greatest variety of what you may feed on without breach of the Law of Moses.... Here is also a Chaplain, I should suspect originally of your Nation, for he talks Hebrew almost naturally, and will not wish to harm you any more than myself."[33] A few weeks later in another letter Folkes reiterated his invitation and repeated, "Your living you need be in no pain about, as we have not had a single dinner without plenty of what the strictest Laws of Moses would allow you, though at the same time we have eat barbecued shols, and other abominations to your nation; but we are all citizens of the world, and see different customs and tastes without dislike or prejudice, as we do different names and colours."[34] Two of da Costa's closest friends amongst the Royal Society Fellowship, William Stukeley and William Borlase, were both Anglican clergymen, and never appear either to have questioned their colleague's religion or to have attempted his conversion in an era when conversion of Jews was common in England. On at least one occasion Stukeley, who held fairly strong millenarian beliefs, accompanied da Costa to Passover at his synagogue.[35] They all shared a strong belief in God and the argument from design, seeing everywhere in the natural world the evidence of a divine order. The specifics of their differing faiths never troubled them.

Whilst there may have been no prejudice against da Costa's faith at the Royal Society, his confident application to a position at the newly established British Museum in the summer of 1756, as noted above, was thwarted. This was, however, not technically because he was Jewish, but rather because he was not an Anglican: a Dissenter or a Catholic would have suffered the same exclusion. He explained to Thomas Knowlton that whilst he had been backed by the Dukes of Argyle and Portland, Charles Stanhope, William Watson, and a "great part of our Royal Society who all wishd me well and did all they could in their power[,] but alas not being of the Establishd Religion of the Country it was concluded I could not have a place so the Librarians are all elected ...". Da Costa felt that the greatest loss was to the Museum and to natural history rather than to himself: "what chagrines me most is that tho they [the appointed librarians] are all clever learned Gent[leme]n yet there is not one of them who professedly studies Natural History neither botany[,] fossils or animals so I much fear whether the natural curiosities will be kept or orderd as they ought to be...."[36] Given this failure, he later feared that his Jewishness

might impede his application in January 1763 for the position of clerk of the Royal Society. But the Secretary, Thomas Birch, responded to his enquiry: "Dear Sir, Your religious profession may possibly be a prejudice to you with some persons; but ought not, I think, to discourage you from offering yourself a candidate on the present occasion, since you have shewn yourself so useful a member of the Society and are capable of doing a great service to it in the office now vacant."[37] Da Costa's subsequent election was almost unanimous: "out of Sixty three balloted I had only one Negative against me...."[38]

Whilst stating that he was not "Any wise greatly Conversant in Rabbinical Learning", da Costa made himself occasionally useful to the Society as their resident Jewish and Hebrew specialist.[39] As well as his involvement with the Royal Society, he was also elected a member of the Society of Antiquaries in January 1752. Here he was likewise occasionally asked to assist in matters of Jewish history, but as he explained to one correspondent who sought assistance with "the ancient Hebrew Record" in 1757,

> My chief study is Natural History, & it is but seldom, and then only like a smatterer, that I meddle in Antiquities; I am therefore afraid, Sir, my observations on antiquities will be few.... On the other Hand, I will beg your favour and assistance in anything of Natural history, particularly fossils, that falls in your way, the public papers will inform you I have commenced author of the publication of a Natural History of fossils.[40]

Indeed he had, and it is this work and the extensive correspondence accompanying it, which make da Costa worthy of our scrutiny.

THE NATURAL HISTORY OF FOSSILS

The Royal Society's first secretary Henry Oldenberg had written in 1663 that it was the Society's "business, in the first place, to scrutinize the whole of Nature and to investigate its activities and powers by means of observations and experiments, and then in course of time to hammer out a more solid philosophy ...".[41] His request for correspondents to contribute to what he called "a Universal History of Nature"[42] was an ambitious undertaking, and more than one man could effectively supervise. Nevertheless, his tireless enthusiasm had helped develop the Society's collection of natural historical material, the "repository".[43] The repository reflected that eagerness in England and Europe in the seventeenth and early eighteenth centuries for collecting and taxonomy. The most famous early collection in England was the "Ark" of John Tradescant, father and son, at Lambeth, which went on to form the nucleus of the great Ashmolean Museum in Oxford, the country's first such public institution.

An important item in many of these collections was fossils. An interest in this subject in later seventeenth-century England had led men with an interest in natural history such as Robert Hooke, Edward Lhwyd, Robert Plot, John Ray and John Woodward to recognize that many plants and animals found apparently embedded

in stone represented species which no longer appeared to exist, and also to question how the remains of marine animals could be discovered in stones at the tops of mountains, in mines and quarries hundreds of feet under ground, or thousands of miles from their natural (often tropical) habitat. Some natural philosophers argued that fossils were *ludus naturae* — "games of nature" which grew in the earth in the same way that gall stones grow in the human bladder, or in the way other minerals and gemstones were thought to grow naturally in the earth. Robert Hooke went so far as to suggest that some species had become extinct, and that other new species existed that once had not,[44] but the serious possibility of the extinction of any species would have suggested an imperfect creation, and thus the theological impossibility of an imperfect God. As William Stukeley noted around 1720, "even at this Day (which is very wonderfull) we know not of any one kind of Creature lost since the Creation".[45]

Da Costa still clung tenaciously to this position in 1784: "An axiom I hold [is] that not any species is extinct since the creation."[46] Fossils could also be brought in as evidence for the universal Deluge reported in *Genesis*. Proof of the Flood helped prove the truth of the Bible. Samuel Clarke — Newtonian scholar and Rector of St James's, Westminster — in affirming the reality of the Flood in his Boyle Lectures of 1704 and 1705, considered fossils "such *apparent* Demonstrations of the Earth's having been *some time or other* (the *whole Surface* of it at least) in a state of Fluidity" that whoever saw the collections of "the very ingenious Dr *Woodward* and others, must in a manner abandon all Use both of his Sense and Reason, if he can in the least doubt of this Truth".[47] John Woodward, antiquarian, naturalist and professor of physick at Gresham College, London, had used his famous collection of fossils in the researches for his *Essay toward a natural history of the Earth* (1695). Woodward believed collecting should have a significant goal, and he would have been pleased with Clarke's remarks. In his *An attempt towards a natural history of fossils in England ...* (1728–29), his credo published at the end of his life, Woodward was critical of those who collected merely for the sake of collecting "without Design of Building a Structure of Philosophy out of them, or advancing some Propositions that might turn to the Benefit and Advantage of the World".[48] On his death in 1728, a year after Newton, he bequeathed his collection to Cambridge University, and endowed a professorship with the aim of "setting forth the wisdom of God in the works of nature, the advancement of useful knowledge, and the profit and benefit of the Publick".[49] Conyers Middleton, former Fellow of Trinity College, Cambridge and the first holder of the new chair, duly pointed out in his inaugural address of 1731 how fossils coud be used to confirm the history of the deluge.[50] Collections such as Woodward's were a product of the Baconian taxonomic imperative, though the popularity of such "cabinets of curiosity" among the virtuosi led to criticisms from the wits. Joseph Addison wondered about learned men "wholly employed in gathering together the Refuse of Nature ... and hoarding up in their Chests and Cabinets such Creatures as others industriously avoid the Sight of".[51] Later in the century da Costa could still complain, "The world

is but too much inclined to treat with levity those *studies* which do not lead to its riches or preferments" and for this reason "the enthusiasm of the Naturalists is so often *ridiculed* ...".[52]

But as the Royal Society had hoped, this culture of collecting both domestic and foreign curiosities stimulated important debates in natural history. The study and impact of these collections had significant repercussions upon ideas of the world, and as Paolo Rossi has shown, along with the discoveries of travellers they contributed to a revolution in ideas of the antiquity of the Earth, a revolution with implications comparable to those that Copernicus's heliocentric system had upon conceptions of Man's own place in the Universe.[53] These turn-of-the-century collectors and theorists on the history of the Earth remained authoritative. Da Costa, who obtained numbers of Lhwyd's manuscripts and assisted in the republication of his "Lythophylacium" in 1760, considered Woodward "my favourite Author; & whose System I was of opinion was solid, & answerable to experience".[54]

Armed then with Lhwyd's notes and Woodward's philosophy, da Costa travelled extensively around England in search of minerals and fossils, writing to one friend, a clergyman, after a two-month tour of Derbyshire in 1747, "for me Sir I have really been a wandring [sic] Jew ...".[55] The loose comparison to Ahasuerus was not fanciful: his life sacrificed everything to collection and the unsettled existence of the traveller. Da Costa was geographically never at rest, and the more he wandered the more he seemed to crave it. In 1751 he was able to spend a month at Cambridge, examining and cross-referencing Woodward's collection with the assistance of the Woodwardian Professor, Charles Mason.[56] But there were other junkets as well that year. On these frequent "research trips" around England da Costa was able to take advantage of the friends he had made through his extensive philosophical correspondence. The eleven volumes that survive in the British Library contain some 2,487 autograph letters to and from him; his correspondence with Thomas Pennant (1726–98) kept at Warwick Record Office alone numbers 201 items written between 1752 and 1778.

He combined correspondence, travel, collection, friendship. His typical practice was to make a rough draft copy of his letters before sending them, and it is almost entirely these which survive. The drafts were, with their replies, sorted and kept in chronological order. Many letters to him contain a note as to when he replied to them, and if their author has not dated them da Costa has added this information. In 1780 da Costa chided one of his correspondents for not keeping copies of all his letters, explaining that "a Philosophical Correspondence is always usefull & valuable not only to our selves but posterity", and that it was his perusal of the letters of John Ray and Robert Boyle that had "given me the thirst after knowledge I have & has also been the origin of all my endeavours". He added that he had kept all his "Philosophical Correspondence" from the year 1735 onwards: "I reckon it a valuable literary history it now makes 14 uniform large folio volumes — did you want to see your first or any other letter you have honoured me with I can instantly produce it in fair preservation[.]"[57]

However, such a large number of correspondents, together with the business of researching, writing and publishing, paradoxically served as proof that da Costa worked at the centre of a large community of natural scientists, but it also offered him the luxury to lapse from prompt reply and regular correspondence. Yet the clouds of protest were forming. One finds, particularly amongst his European correspondents, annoyance or surprise at the long time they have gone without having a reply from da Costa. Indeed, one of his German correspondents, Dr Peter Simon Pallas, informed da Costa in November 1764 that he had suggested him to a friend as a potential correspondent on minerals and fossils in England: "But he told me he had ... endeavoured to obtain your correspondence, but in vain, and that besides he did not like irregular correspondents; for, give me leave to tell you, this is the character, you generally bear abroad."[58] Da Costa defended himself, claiming (falsely) "you are the first person that ever taxed me with the character of an irregular correspondent ...".[59] There had been many similar ripostes, yet da Costa whitewashed them and blamed his work schedule for the long delay in his replies.

Da Costa could also be sly in his dealings with correspondents and collectors, and the pattern appears to have hardened around the time (1763) when he was officially installed in his Royal Society post. He would request gratis specimens, ostensibly for his own collection, which he would then use to make up collections to sell on to other virtuosi. Often he did not supply his best samples. A blistering episode occurred that year (1763) in his dealings with young Joseph Platt — an honest collector without much ability — who laid bare the enigma of da Costa's dishonest treatment of him and the swindle of the specimens they had exchanged. Platt was too well-bred and sensitive in the face of such dishonesty to take the case forward to the Society; but the extant archival evidence makes it perfectly plain that da Costa was to blame.[60] Unchecked by his peers and undetected in public, da Costa continued the appalling practice he had been engaging in for some years. In the summer of 1754, he had sent as gifts to his friend, the naturalist Thomas Pennant, seven samples he had received from another correspondent in Bohemia. Pennant returned the list to da Costa, writing on the reverse his opinion of the fossils, remarking of them variously "Trash", "a vile specimen of a curious fossil", "very bad!" and "Still worse ... too common to be worth acceptance ... an execrable specimen". Pennant complained, "why do you tell me of the curious things you have, yet send me none; or at most such a duplicate as this?" Against the charge that he was an irregular correspondent and dishonest trader, da Costa yet again felt compelled to defend himself. But when looking across the breadth of his correspondence and dealings, there can be no doubt whatever about these accusations: they amounted to more egregious failing than the inevitable encumbrances of his vocational turf. He did not always send his best, as he claimed he had; he often traded down with fellow collectors; he replied when it suited his own interests. All these deceits were ultimately moral, we think, rather than intellectual, and arose from a defect of character steeped in such psychological

excess that it could not restrain its own folly.

Typical of these activities and their role within da Costa's practices was his ongoing retention by William Constable (1721–91), a colourful, Catholic, country gentleman.[61] Landed squire, traveller, antiquarian, virtuoso, collector, bibliophile, bachelor to age fifty-four, Constable had met the celebrated Jean-Jacques Rousseau in the spring of 1770 in Geneva and became enchanted with his romantic manner as the new, fashionable "Man of Sensibility". All Europe courted Rousseau when he later announced his "botanical tour", and Constable was one of the grasping set. He warmly invited Rousseau to visit him on his small Yorkshire estate, Burton Constable, northeast of Hull in the low marshes on that empty stretch of peninsula between the mouth of the Humber and the North Sea.[62] Also biographically, Constable could not attend university in the 1730s but had been tutored at Burton Constable by a Dr Molyneux (not to be confused with the astronomer and politician Samuel Molyneux who died young in 1728 when Constable was seven). In 1741–42 Constable took the first of three "Grand Tours" where he had met Rousseau and collected fossils and specimens, having inherited this penchant from his father, a successful medical doctor. By 1742–46 he was in London living near Harley Street and interacting with naturalists and antiquarians, where he met Hill and da Costa through the Catholic Lord Petre of Thornton Hall, Essex.[63] Hill was retained by Constable after 1746 but was replaced by da Costa in the mid-1750s when Hill's gout ended his own travels around the countryside. By 1757 da Costa was sending fossils and cataloguing the huge 'herbarium' Constable was amassing. Constable was particularly keen on medals of the Roman emperors made by the Roman makers, and eager to have all types of "marbles". Some time in the late 1750s da Costa sent a parterre of shells and hundreds of rocks, which remain uncatalogued today in the museum at Burton Constable. These activities also brought Constable to the attention of the Society of Antiquaries and the Fellows of the Royal Society, and in 1775 he was elected FRS, having been proposed by the botanist Daniel Solander and seconded by Joseph Banks, then the president.[64] Both da Costa and Hill were retained and rewarded, perhaps handsomely, as money was no object: Constable wanted a specimen of everything and was determined to have the best. Da Costa's combined earnings cannot have been too small, considering that Constable was merely one of several retainers. Why then da Costa's constant debt and mismanagement of money? This is the question we continue to return to in this exploration. Given all his employment and earning, how was da Costa hoarding or squandering money in a way that regularly landed him in debtor's jail and eventually somewhere worse?

We have no simple answer. It is clear from the Humberside archives that during the 1760s Constable added to the ranks of those he employed: he paid Thomas Knowlton (already mentioned above) to draw up elaborate designs for a menagerie to be built at the north end of the lake at Burton Constable, and Thomas Pennant to supply him with stuffed animals. In July 1764 da Costa (remarkably still out of prison) wrote to Constable that "Mr Sherwood" — James Sherwood of Devonshire

Street, London, who attended meetings of the Royal Society and collected together with da Costa and Hill — "is extreamly busy pasting the plants on paper according to your desire and hopes to send them to you in next Monday's carrier".[65] Presumably Sherwood was also paid. Then Constable brought in "Capability" Brown, the famous landscape gardener, to lay out the lake and gardens at Burton Constable, and subscribed to John Hill's very expensive volumes of the *Vegetable system* from 1759 forward.[66] But the issue is not Constable's finances and his passion for collecting and amassing: Constable had large sums he could commit to these projects; da Costa, like the rest of those retained, must have been paid something.[67] Otherwise, we find it difficult to explain da Costa's continuing financial plight. The conclusion we have reached progresses knowledge by delimiting the questions that can be asked. Can the amounts involved have been considerably smaller than has been imagined, even in relation to the buying power of the time, on the rationale that all these men performed these activities while in the search for patrons? Alternatively, can da Costa have been a reckless manager of money? Or was he so naturally greedy and peculiarly selfish that whatever he earned he soon squandered on books and objects, having been unknown to indulge in other personal vices? It was a culture of excess in which almost everyone seems to have been collecting; da Costa may have been impervious to his own glaring weakness as a consequence. However, viewing the whole of da Costa's life on balance it may well be that the last of these is the salient one (perhaps in combination with the others). His habit of excess may have become such an ingrained neurotic trait that he could not control himself whenever money was implicated.

But it would be wrong to think he corresponded profusely just to facilitate his network of associates and his travels. He was trying to strengthen the naturalist's foundations, not breach them; never aiming to make a leap in the philosophical advancement of his subject. As we will claim, his was inherently a conservative mind, accepting of the philosophical assumptions of his subject and limited by the boundaries of his own imagination. His letters abundantly substantiate the view: many, indeed most, are concerned with obtaining samples of minerals, ores and fossils, and sometimes insects, fish and other animals, both from around Britain, Europe and further afield, but never challenging the basic assumptions. His letters often include lengthy details of where to look for samples, how they should be recorded, and the care with which they should be packed and conveyed to him. Even as his collection grew, he continued to request more and more samples. Dr John Green of the Spalding Gentlemen's Society, to which da Costa was elected in late 1746, was surprised by this constant demand for samples. Da Costa explained himself:

> you are undoubtedly surprized at my boldness and odd manner of asking for several specimens of one thing but I beg leave to clear myself of that oddness by informing you that I carry on a pretty large philosophical correspondence not only in this kingdom but also to foreign parts and therefore am obliged always to have numbers of specimens more than for my own collection to retaliate the

> presents I receive from them and to comply to send them what they desire in return — this I could never perform did not my correspondents oblige me with duplicates of what is common with each and I am ready at all times to serve them with duplicates in the same manner according to their desires.[68]

His aim was, furthermore, regularly and routinely publication. His proposals for publishing by subscription *A natural history of fossils* had appeared as early as 1752, and its first and only part appeared in 1757. In his preface to this work he explained, "I have endeavoured to reduce this study, hitherto deficient in respect of method, to a regular science, and in the attempt have been careful neither to multiply the species, nor lessen their number, unnecessarily".[69] He added that "of all those who have wrote upon this subject, none have attempted to reduce it to a regular science, except the celebrated Dr. Woodward, who published a method of arrangement founded on the growth, structure, and texture of Fossils".[70] But, he continued, this method was "pretty much exploded" and the German and Swedish "method of dividing these bodies, according to the various changes produced on them by fire ... now universally prevails".[71] Da Costa, however, explained that he had examined all these systems "and, finding them defective, have presumed to form a new one from the principles of both. I have endeavoured to arrange Fossils, not only according to their growth, texture, and structure, but also their principles and qualities, as discovered by the aid of fire, and acie menstrua: And in this way I am confident that all the known Fossils may be accurately distinguished...." Any other method, he stated, "must occasion a strange confusion" whilst, by contrast, "My system is simple, natural, and easy to be understood ...". It had been by pursuing "such natural and simple methods as these, that botany has so eminently raised her head above her sister sciences. A plain examination of the objects of nature, of the seeds, fruit, petals or stamina [*sic*] of plants, has given rise to the systems of the most famous and learned botanists".[72] He hoped his plain system would reproduce their success.

Although da Costa did not wholly approve of Linnaeus's new method, having been bred in the traditional English system of classification, and unwilling to be sufficiently flexible to embrace a revolutionary botanical methodology, the Swedish naturalist was nevertheless leading the way in the systematization of the natural world. Buffon had warned in the "Initial discourse" to his *Histoire naturelle* (1749) that "in the study of natural history, there are two equally dangerous positions: the first is to have no system at all, and the second is to try to relate everything to a restricted system".[73] In criticism of Linnaeus, Buffon added to this the observation, "in general, the more one augments the number of divisions of the productions of nature, the more one approaches the truth, since in nature only individuals exist, while genera, orders, and classes only exist in our imagination".[74] In England there was more support for the simple system of Linnaeus than for the caution of Buffon, but da Costa shared the latter's viewpoint. He told William Borlase in 1760 that "tho so greatly deserving the applause of the Learned as [Linnaeus] certainly is I am not so infatuated with him as you and others seem to be[.] he grasps too

much[;] all Nature cannot be the study of one man & he accomplish it — much greater will he & all men appear would they as you justly observe canvass one subject only[.] we should not then be deluged with superficial treatises as we now daily are".[75]

Da Costa despaired of this "Vice of Systems", believing that systematization was coming before simple description; he told Peter Ascanius in 1760 "tis their systematical Madness my Dear Friend that is the Bane of Science and I assure you I think by it we rather go backward than forwards ...".[76] Nonetheless, his own natural history with its new system was well received in the *Monthly review* the following year. Their critic found his definitions and descriptions "remarkably accurate" and considered the book as a whole to be "agreeable to a variety of Readers, besides professed naturalists". Flatteringly, it concluded that this first volume "has been much approved by the learned in this branch of natural philosophy.... Mr. Da Costa is certainly one of the greatest masters of the subject that this country hath yet produced".[77] But commercially it failed, and da Costa complained the following year that "I have sold so very few Books that I shall be greatly out of pocket ...".[78]

Despite his vast collection, his far-flung correspondence, his constant writing, and his remarkable reknown, da Costa never developed his own "theory of the earth", and he was essentially a traditionalist in all respects. As Roy Porter astutely concludes, da Costa's scientific ambitions "were essentially those of the previous century: the accumulatory strategy of natural history, the concern with specimens. There is no revolution between Lhwyd and da Costa".[79] It is a damning geological last-judgment but fundamentally correct. For Da Costa remained convinced by the biblical account of the world, and fossils were the product of the Noachian deluge. For him, there was no other explanation, making this clear in a paper read at the Royal Society in April 1757, and later published in the *Philosophical transactions*, on the imprint of plants "hitherto unknown to botanists" in coal strata: "I firmly believe these bodies to be of the vegetable origin, buried in the strata of the earth at the time of the universal deluge recorded by Moses."[80] When it was later proposed that all coal was of a vegetable origin he rejected it; in his opinion it applied only to some coal, and not to all.[81] The idea held by some that there had been elephants, moose and crocodiles in Britain because their fossils had been found here was "the idle & fantastical vapours of the distemperd brains of (otherwise studious & very learned) men".[82] Henry Baker had published this thought, with respect of elephants, in the *Philosophical transactions* in 1745, suggesting that England's climate had once resembled that of "very hot Countries".[83] But as da Costa stated in 1784, "be assured, that all such exotic remains ... were never inhabitants of this island: but only are incontestable proof of the universality of the Noachian Deluge, recorded in the Holy pentateuch".[84] For a former correspondent of Buffon, this was conservative, traditional thinking, even if it expressed the prevailing consensus. And it was typical of da Costa that such conservatism about Nature marked his whole career. Indeed, he never shed the habitual traditionalism that was his characteristic hallmark.

DA COSTA IN THE ROYAL SOCIETY

Their respective conservatisms notwithstanding, da Costa and Stukeley together formed something akin to a critical wing of the mid-century Royal Society, collaborating at least once in their attack. According to Stukeley's diary, da Costa addressed the Society on 23 January 1752, informing them that

> his opinion was, the Society had not acted judiciously in rejecting all papers relating to longitude, squaring the circle, perpetual motion, philosophers stone & the like, tho' these matters probably will never be discover'd: yet tis notorious such pursuits have brought forth many useful discoverys in medicine, mechanics, mathematics. therefor he proposd, that such papers sh.d be referd to some members to make a report concerning them: a necessary piece of civility to all those that pleas'd to correspond with us.[85]

This was the tip of an iceberg. As we have shown in our previous paper, the criticisms continued down through the decade, although Hill dropped out of the troika by 1752–53 when it became clear he had no future of any type in Crane Court. Then, at the Royal Society on 22 March 1759, a letter from Stukeley was read out in which he appealed, as da Costa recorded afterwards in his diary of the Society's meetings,

> to the Society as a Senior Member and exhorts it to cultivate its correspondence as a means to increase Literature and further blames it as a bad custom of the Society always to reject all papers relating to the Longitude[,] Squaring of the Circle[,] perpetual Motion[,] Philosophers Stone &c without any or previous reviewal [*sic*] of them for the Dr justly observes that though these points are not proved or found out yet in the persuit [*sic*] of them many valuable and excellent discoveries have been hit upon by these mad projectors as is fully known to all the Litterary [*sic*] World[.] the Dr then proceeds to give an account & sketch (by memory) of a new invented machine shewn him lately for observing Jupiter's Satellites which the Inventor dared not shew the Society for fear of receiving the usual answer. NB however just and worthy the Drs observations are I find the Society will of its old way since in the minutes of this Meeting read at the succeeding one no notice was taken of the Drs just remarks and only the Machine was mentioned.[86]

Da Costa communicated this oversight to William Borlase on 14 July. Borlase replied with the observation, "I think his address to the Society carried weight & reason & requir'd attention".[87] Da Costa responded in turn, "I likewise agree ... & really think it would have reflected great honour on the Royal Society to give due attention to Dr Stukeleys judicious advice".[88] Borlase no doubt would have joined the critical wing had he been closer to London. Yet their criticism was not limited to these — admittedly problematic — topics. Da Costa also incited his friends on another subject even closer to home which he felt reflected poorly on learning in Britain: the status of its natural history collections.

By the mid-eighteenth century, in Britain at least, the previous century's fascination for fossil collection had waned, and the Royal Society's repository and library, and the collection at the Ashmolean, were all languishing. When da Costa's friend John Turberville Needham visited the Ashmolean Museum in 1749 he was surprised to discover "that their collection of fossils ... was not only very indifferent, and ill rang'd, but also that their neglect in that matter was the more to be regretted because it gave foreigners a mean opinion of the English in that branch of knowledge". He felt that this matter required immediate action, and suggested that da Costa and his friends should send "supernumerary specimens" from their collections, which "would at once furnish them with a rich collection. I take this much to heart, because it so nearly [?] affects the honour of our nation.... I know no one so capable as yourself, of an undertaking of this kind, nor who more deserves the honour, that may result from so valuable a donation".[89] He directed him to write to Revd Watkins, the vice-principal of St Mary Hall, and Da Costa agreed to take on the task, reflecting that he was sorry to hear that the museum "is in so bad a condition[.] I really have a strong patriotism [which] reigns in me & the praises of my country is what elates my soul but I have with regret often observed that negligent decay wch attends our public foundations a negligence more common here than in any other nation in the world O ultinam that the Museum at Oxford was the only one in decay in this great & learned nation".[90] On 9 November 1749 da Costa wrote to Watkins, promising to "immediately prepare a choice Box of specimens of fossils to present to the Museum".[91] Watkins was grateful for da Costa's offer. Like Needham, he had discovered that "Our present collection of Fossils is so imperfect in all kinds" that he was "at a loss how to fix it.... It has been [a] matter of some surprise to me, that as fossils make so curious a branch of natural history we have never had a larger collection of them in this place...."[92] But although Watkins promised in 1752 that the university "will always acknowledge with gratitude the present which you intend for it", da Costa seems never to have got around to sending the fossils.[93] A confusion is likely; da Costa may have hoped for payment, whilst Watkins, who ironically subsequently furnished specimens for *da Costa's* collection, was expecting a gift.[94]

The institutional contexts of the "repository" are crucial. At mid-century it remained not merely the concern of the camp of naturalists within, and without, the Society but of other non-naturalist groups as well; this for nationalistic reasons, as we have seen, as well as ideological. The penchant to collect had waned but had not wiped out the motion to reform the repository for all sorts of reasons, as the minutes and records show. Among fellow naturalists it remained their most persistent *cri de guerre*; not entirely to the exclusion of other concerns, including the gaining of power in elected offices, within the Council, and the much needed reform of the *Philosophical transactions*, but any ranking would show the repository to be close to the peak. The case was not merely that the repository had become a disgrace to the nation, as several Fellows had intimated, but that its decline augured in some significant sense the decay of the Society at large.

The library at the Royal Society was also in a parlous state by mid-century, and the clerk, Francis Hawksbee Jr, who was responsible for its upkeep, was old. When da Costa had shown William Borlase around Crane Court in 1751 Borlase observed, "To tell you the truth, I was in your Library without perceiving it, and to me nothing is more absurd than hiding books in a place of wch they are design'd to be the principal Ornament, and locking them up, where they were plac'd for use and reading".[95] Seven years later, da Costa was likewise complaining of the state of the Royal Society's repository, particularly in comparison to how he thought such collections were cared for abroad. Instead of copying the fashions of French hairdressers and Italian singers, he lamented, could we not "imitate" those nations

> in their exactness of keeping up public foundations of utility for here a Museum of the Royal Society is lost in 70 years a Gresham College is hardly known & our public Libraries are always lock't while those of that nation are strictly kept up.... I much doubt whether our national British Museum (now in its infancy) will last 30 years hence[.][96]

Borlase was less cynical about the prospects for the newly founded British Museum, but agreed. Da Costa's sustained criticisms of the other institution — the Royal Society — had always peruaded him. In his reply Borlase claimed to hope that it would "revive & extend the studies of Nature — it will have the care & the purse of the publick to nurse & foster it". Yet even he lost no time before lashing out: "Our Society is poor, if it were otherwise would it suffer so many noble productions of nature to lie in such dust[,] confusion and ruines as are to be seen in Crane's Court?"[97] Da Costa considered the matter closed. The ruin was beyond repair: "As for the Royal Society Museum it can never be restored but it may indeed with due attention be revived."[98] He despaired that nobody in a position of power at the Society seemed interested in repairing this damage to the collection, which reflected so opprobiously on the reputation of the Society. In another letter to Borlase of 1760 in which he asked "how would a Howard stare could he see his Arundell Library Inches thick in Dust at Crane Court", he concluded: "I am tired with these reflections & am anxiously Grieved as I daily find our superiors supine & unwilling to remedy these Gothic [customs, *del.*] enormities[.]"[99]

Compare the entirety of da Costa's decade of criticism (the 1750s) to Hill's and Stukeley's and you discover a significant, if somewhat disunified, cry for reform. However, the institutional dynamic of Crane Court was such that criticism and involvement could coexist — indeed they may have parasitically advanced each other. For on 3 February 1763 da Costa was unanimously elected as the Royal Society's clerk, museum keeper, librarian and housekeeper, a position that brought him an annual salary of £50 and provision of rooms in the Society's premises in Crane Court.[100] Despite his sustained criticism of the Society to various critical parties he had lobbied hard for the post. Amongst his proposals was that he would add to the position the additional duty of attending "two mornings each week in

the Library" for Fellows and foreigners to read, "& on one of the mornings natives not members shall be permitted the same liberty as the Royal Society's Library is undoubtedly as magnificent as any in Europe it will by this means become in some sort Publick and of utility to the Great honour of the Society".[101] He was aware of what he was taking on in this post and knew it would be to the detriment of his own researches. In March 1764 he explained to one of his correspondents, Thomas Bolton of Worraly Clough, near Halifax, that he had spent most of the previous year on the task of overcoming years of neglect and would be thus occupied until the "best part of this approaching summer". It was this "that just at the present hinders the prosecution of my work[,] however I am not Idle at it & hope it will be compleated ere another year rolls over us".[102] By the following March he could bask in the news to Borlase that the museum

> is now entirely clean & in order the Augean Stable is at last overcome & during the life that the almighty grants me shall never again be the habitation of Insects & Vermin for I have exterpated them with such cruelty fit only for an Inquisition of Spain or Portugal to boast of.... I do not doubt now the Learned will be induced to deposit things therein as it is no longer dead to the world & a disgrace to this Society with joy I acquaint you that many presents are already promised by several.... An idea cannot be conveyed of what the Museum now is to what it was....[103]

Was this fantasy? Had it been so dramatically transformed? The Society appointed two inspectors to oversee his work, so some official interest had at least been taken.

He had also been able to restore gaps in the collections of the Royal Society's library, which he had set about cataloguing. By 1766 Buffon's life work had reached its fourteenth volume, but the library held only the first six. Da Costa contacted the author, asking why he had ceased to send them his work. Da Costa told Needham "his answer was he had never recd any thanks from the Society for those he [had] sent ...". Da Costa explained that he had written to Buffon, via an intermediary, "to appease & remove the peak he has (not without reason) for not having been thanked for them & tell him further there are now (since given) standing orders for the Secretaries to write letters of thanks in the name of the Society for all future presents so that such an uncivility can never happen again".[104] He asked Needham for his assistance in procuring the outstanding volumes of this "very valuable work". Needham replied early the following year: "Mr de Buffon was easily appeased, and intirely satisfyed with your apology" and had agreed to "immediately send you his natural history compleat from the seventh volume inclusive to the last ...".[105]

There was more to come. Da Costa also added considerably to the material on display in the Society's museum with many of his own items. These included at least seven of his own cabinets and five boxes filled with natural historical material, stuffed birds, a stuffed mongoose, and in the library a number of prints, maps, and

books.[106] By the following October he was boasting that

> Foreigners now frequently visit it & are greatly delighted to see the subjects as well as the arrangement they are in[.] I am even farther flatterd by numbers of them in expressing that it is more scientific & of more utility that that famous Palace of the British Museum[.] as these things are now so regulated a spirit of energy seems to arise among the Members to fully restore the excellent laudable & great Institution of this Royal Society[.][107]

Here then was sustained criticism tempered by the reform of action and deed. If da Costa had been critical, once in post he was not hypocritical. He told Borlase that his other projects for the Royal Society included "a new Edition of Grew with all the Additions and Emendations till the present time [which] will be publishd by me with permission of the Society as also a Catalogue of their Libraries & papers".[108] He also started work on an

> Athena Regia Societatis Londinensis.... It is a work I have planned & is already in some forwardness & I had the Honour to present it the Society's Library lately where as it is under my care I daily endeavour to carry it on to perfection[.] it is 3 Vol: folio in which the names of all the FRS from the Institution to the present time are alphabetically set forth with what anecdotes I can collect of their lives & a list of their works even to their papers inserted in the Transactions to which are added particular lists of Princes[,] Presidents[,] Secretaries[,] treasurers &c even my own predecessors the Librarians among whom I boast of the great Halley and also a table of the Principal Events of the Society[.] this plan is so applauded that all the fellows strive to assist me and several have generously given me anecdotes of themselves ... having the archives of the Society under my care I am somewhat more enabled to prosecute this work than any other person[.] I say somewhat more enabled for would you believe Dear Sir that for this term of a century only (for it is no more since the Institution) that there is such confusion neglect &c that one might as well attempt a history of Egyptian monarchs of the earliest antiquity as this task[.][109]

With these and his other projects he worried that "perhaps I grasp too much", but reflected that "the degree of my enthusiasm for the service of the Society & literature is so high that I am quite a stoic to Human infirmities ...".[110] He may have been silly in overestimating his innate abilities but he was not entirely fabricating the reason: this was not in his character. And he soon admitted that whilst he had made some progress with his history, "I am afraid it will be too great a task[,] but if I cannot build the edifice certainly some praise will be my due for hewing the stone & preparing the mortar ready for others".[111]

Another project he conceived around this date, but which also did not bear fruit, was provisionally titled "Gleanings of Natural History", which was to be a series of short illustrated volumes.[112] As Dru Drury expained to Peter Simon Pallas, "Mr

Da Costa is going to publish plates on nondescript animals — shells, Insects, etc. in periodical numbers, five plates with their descriptions being a complete number".[113] In this effort to publish both for science and profit, da Costa is closely aligned to his old colleague-friend-rival Hill. By 1744 Hill had made the acquaintance of da Costa and a number of other important naturalists and Fellows of the Royal Society, including Sir Hans Sloane, Martin Folkes, Henry Baker, and James Parsons. In 1746 he published his first works in natural history, a translation of Theophrastus's *History of stones*, and had two papers published in the *Philosophical transactions*. But in 1747 — the year da Costa was admitted — when Hill likewise attempted to be elected to the Royal Society he failed to win the required support of two Fellows for his nomination.[114] Da Costa in 1747 considered Hill's "capacity & knowledge" to be "extensive; but his work is really in my opinion too large ...". Furthermore, in Hill's proposed "Universal Natural History" he

> designs to begin by the fossil kingdom, consequently that his work & mine will in that particular clash together: yet he never ... thought of undertaking a nat[ural] hist[ory] of fossils till some months after I had declared publickly at Mr. Bakers[,] Dr. Parsons[,] Mr. Sherwoods & other places my scheme of my work, & even drew up a kind of plan of it wch I showed them all, & mentioned the work as a quite new design, an intire nat: hist: of the fossil kingdom having never been made before.[115]

From this point forward they were keen competitors, and da Costa and Hill's friendship declined and eroded. Hill's witty satirical attacks on the Royal Society in 1750 and 1751 practically finished off his reputation, da Costa later reflecting upon the sorry fate of "the famous Dr Hill scorned & abandon'd by all that knew him formerly on account of his scandalous tongue & his lying faculties ...".[116] But whereas Hill worked fast, produced poor-quality prints, and published prolifically, da Costa was usually a slow, meticulous writer and his books were frequently praised for the precision and quality of their illustrations. As he assured a friend in 1762, his own natural history of fossils would still be some time in preparation: "I shall be in no hurry for I will make it as perfect as I can and for that reason the World must have patience[.]"[117] The subtext was Hill: the swiftest of workers with whom da Costa was virtually obsessed; for the statistical fact is that no one else's name appears more frequently than Hill's in his vast correspondence. Despite their differences, their lives continued to be parallel. One was excluded from the Royal Society, the other admitted and embezzled his patron-hosts. Hill located his own patron — the powerful Earl of Bute, not yet Prime Minister — but the discovery eventually proved a liability. Da Costa wrote of Hill living in "Magnificent Lodgings" and, elsewhere, that "he lived always & died vastly in debt ...".[118] However, Da Costa's own relation to debt and excess was constant, the signs of it apparent in early life, even if he used his money for different, more premeditated, purposes than Hill. Da Costa and Hill were thus flip sides of a familiar eighteenth-century coin: both intelligent, dedicated natural philosophers, if clearly limited

in their natural capabilities, who lacked the social or financial position to make their way in the upper echelons of the Enlightenment, and who both ultimately failed in their attempts to advance their science significantly *and* carve a place for themselves in history. The irony is not that they failed — failure was predictable — but that each came so *close* to succeeding.

NATURAL EXCESS

This contrast is furthermore instructive for their — da Costa's and Hill's — different versions of excess; and if there were time and world enough Folkes's versions would also enter the debate. The neglectful *bon viveur*, the freethinking President Martin Folkes, was widely known for his excesses. Da Costa and Hill were aware of each other's varieties, as we showed in our first article: since the 1740s as young turks they had tried to secure patronage and navigate their way around London's scientific circles. Hill had campaigned with others, especially together with the members of the "Wednesday club", to get da Costa elected FRS, and succeeded in 1747; when Hill lobbied for himself he failed ridiculously, almost comically. It may seem that these are loose, biographical, means of framing "excess" in a culture where it was rife. Our aim here, however, is not to formulate an academical-historical prolegomenon for Enlightenment excess (economic, social, religious), but to document its varieties within this small circle of naturalists and, especially, to demonstrate the havoc it wrought in the career of our protagonist. As early as 1750 Charles Lyttleton, the antiquary and bishop, was complaining about "the Little Jew's being over busy", as we saw in the epigraph: one of *many* versions the excess took. In any case, both da Costa and Hill continued to be hyper-critical of the Royal Society's policies, as we demonstrated in our previous archival search.[119] Much later, in the 1760s, both carried on vast correspondences with naturalists scattered all over Europe, with greater frequency and geographically more far-flung results than the typical English naturalist at mid-century.[120] And they wrote to each other even while da Costa was in prison, as late as 1770, however strained their relation had become over the years.[121]

More crucially for their lamentable excesses, both men were hewn from the same outsider's rock; and yet they were paradoxically different in virtually everything they undertook, especially in their attitudes to, and uses of, money. The symbolic status of money signified something else for each: for da Costa a world-class collection, for Hill a visible lifestyle. Yet each possession was intended to elicit envy — this was how the outsider gained his revenge on those he wished to impress. Their outsider status also elicited different social and scientific responses from their contemporaries: da Costa forever being differentiated as the 'Jew' no matter how much esteemed his professional competence was, Hill eternally troubled and segregated by his lack of university education as the younger son of an embarrassingly impoverished clerical father.[122] But if da Costa was (at least visibly) the religious outsider, Hill was the (unequivocally ostentatious) parvenu unable to hide behind his mannered crudity and hypermaniacal egoism.

Even so, each man cultivated excess actively and consciously: da Costa pursued money to buy books, marbles, fossils, specimens, insects and plants, which he in turn sold at a profit, Hill lived in grand style in St James's with a carriage-and-six, servants, a mistress, and a hardup aristocratic wife he could not afford to support in this style. Da Costa's suspicion towards his former fellow collector had formed on academic grounds in part, but much more so on Hill's fall from grace after the scandalous feud with the Royal Society and — as we have already seen — his "scandalous tongue & his lying faculties ...".[123] Their loyalty ceased by the mid-1750s, prompted not least by each seeing darkly into the other's vices and selfish cultivation of excess. Love between them was never restored — indeed what began as youthful amity and mutual support ended in bitter condemnation and detestation, as Hill's cruel, surviving letters to the imprisoned da Costa show.[124] All this, however, demonstrates less about their friendship than about professional rivalry, we think: the rivalry of *excess*. The voice behind da Costa's pre-prison boast, for example, to his fellow Jew, Ralph Schomberg — "I have made vast collections; but my Collection of Fossils is reckoned equal, if not superior, to any private one in England" — is ultimately not so different from the appalling Hill who superciliously writes to da Costa in prison that "very few have so little their Hours at their command as I have [mine]".[125]

This was moral excess, as well as financial, social, and collectorial in a Georgian culture that sanctioned these. In both cases it amounted to obsessional greed verging on the neurotic. The "Little Jew" had to possess the finest collection in the realm; the uneducated second son succeed so visibly that his time could be quantified as money. Each man had actually *succeeded before* his fall and assured himself a place in history: this was the grand irony. But no distinction would have sufficed for either. Had da Costa been satisfied to buy and collect reasonably there would have been little need to ransack his employer's bank. If Hill had just paused to reflect on himself and his antics in 1747–48, when his election to the Royal Society was virtually guaranteed, his maturity would have been rather different from what it became (even if his character flaws had continued to be as objectional as they were all his living days), and his posthumous reputation less tarnished than the caricature it has become in two centuries. Yet the "what if" theory of history has no credence. The plain fact is that *neither* man could curb his excesses — the perpetual thirst for more — and if one thing had not brought down either man, another would have. The "Little Jew's" case is particularly poignant, as it disgraced not merely himself and cast aspersion on the London Jewish community in the 1760s, but also cast a shadow on the Royal Society in a period (1740–70) when it needed all the public and internal approbation it could gather.

For da Costa's greediest excess was played out in the public arenas of the Royal Society. With a full-time, and quite probably a life-time, position at the Royal Society secured, the financial troubles that had beset his life should have been overcome. But one of da Costa's responsibilities as Clerk was to administer the process of elections of Fellows, to write to successful candidates, and to arrange

for the collection of their fees. New Fellows had two options for payment: they could either pay a lump sum of around twenty-five guineas immediately in lieu of all future contributions, or they could pay a five guinea admission fee and sign a bond for payment of one (later two) guineas annually. According to da Costa's letters, at least, the Society favoured this latter method for Fellows who lived outside London.[126] Perhaps this was partly because not all Fellows considered their membership value for money. Thomas Pennant told da Costa in July 1762 that he had "dismissed" himself from the Society "because my Patience was exhausted at their shameful neglect of the end of their institution; for during the whole time I was a member viz near 8 years I never received above the value of 12 shillings, for my annual Guinea & five Guineas entrance".[127] As encouragement for collecting the fees of Fellows in arrears da Costa received a shilling in the pound, and as security against any wrong-doing on his part he was required to stand a bond of one thousand pounds. This assurance was signed by two friends and Fellows, his cousin the Jewish financier Joseph Salvador (1716–86), and one Samuel Felton.[128] Significantly, Salvador had at one time been one of the wealthiest and most prominent Jews in London, and had been a prime mover in lobbying for the 1753 Jew Bill. He had been elected a Fellow of the Royal Society in 1759, and in 1760 met the new king, George III, as a representative of the whole Jewish community in England. Da Costa's fall must have been embarrassing to him.[129]

What da Costa appears to have done was to take the full down payment of a new Fellow, but then to have registered him as an *annual* rather than as a *perpetual* member. If he then continued to pay the Fellows' annual fees himself, he could enjoy the profits of a sizable interest-free lump sum. His fraud was discovered only in 1767, when John Hope, Professor of Botany at Edinburgh University, made enquiries as to why he did not appear on the Society's annual list of perpetual members.[130] Members of the Committee having examined the Society's Journal Book "and having found great omission of Sums received", da Costa was called in before them on 10 December 1767. He was questioned "and after several Excuses and prevarications" he "at last pleaded guilty ...". The sum unaccounted for in that year alone was "five hundred pounds and upwards ...".[131] When the unhappy details of the case were presented to the body of the Society on 17 December they were immediately relayed to da Costa's close friend William Borlase by Borlase's nephew, Richard Pennick, Keeper of the British Museum Reading Room:

> Upon a late inspection of the accounts of the Royal Society, there appeared a deficiency of a very considerable sum, not less than £1400, which Mr. da Costa, to whom the money had been paid, would give no account of. Upon a further enquiry, however, to the surprise of every one, it was discovered that the said sum had been embezzled, and other scenes of fraudulency were brought to light, which (I am sorry to mention) from the very first day of Mr. da Costa's election manifested an intention to injure the Society. This discovery has been succeeded by the expulsion of Mr. da Costa, not without a wish from

> many of the members that such a flagrant breach of fidelity was exposed to a higher punishment.[132]

On hearing this news, Borlase reflected in a letter to Charles Lytteleton (of our epigraph) that da Costa "has been necessitous ever since I knew him, now twenty years since, but I thought till now that he was honest, in which I am astonished that people who saw him every day should be as much mistaken as myself".[133] Lyttelton lamented that "so usefull and intelligent a servant [*sic*] should prove so great a rogue", whilst Thomas Pennant told Joseph Banks, "I expect daily to see our Society in the Bankrupt's list, since the trick my worthy friend da Costa has served us".[134]

Faced with this humiliation and evicted with his wife and child from their lodgings in Crane Court on Christmas Eve, da Costa tried to escape England. France was his first thought. Covering up the exact nature of his wrong-doings, he enquired after his friend Needham, who was still resident in Paris, about the chance of finding employment there. But the pens of the ranks in the Republic of Letters had already been busy: Needham replied that he had heard of da Costa's "misfortunes" since "some of our members, who shall be nameless, have wrote letters hither to their several correspondents not at all to your honour, and very different from what you insinuate to me".[135] Needham explained that there was no chance of employment in France. Rumours were also spreading that da Costa was thinking of fleeing to Portugal. He denied this, telling a friend in July, "I never have stirrd a single step from this Metropolis & have dwelt ever since within sight almost of Crane Court ...". But one wonders what other countries he pondered, and what view he now held of his own greed. He had, he continued, returned to lecturing, his subscribers surprisingly including a number of prominent FRS, amongst them Dr William Hunter and Dr John Fothergill. He informed the friend, "I now retire intirely into study[,] and pray do not think that the malice of some Individuals affect the whole world so as not to suffer me to live[.] I do live & perhaps shall do so to their confusion for there are those who Humanely pity & ... befriend me."[136]

The worst was yet to come. As noted above, da Costa had two securitors who had reluctantly accepted their responsibility and repaid £1000 to the Society. A large part of their bond was retrieved by the sale of da Costa's entire library of printed books and manuscripts, together with his collection of prints and drawings of natural history, "at Essex house by Paterson and Eve, on Thursday May 12, 1768, and the two following days, as 12 o'clock".[137] But £416.10.3 was still owed, and the Royal Society pursued it. Their man was detained by the Sheriff on 7 November and on 9 November 1768 was committed to the King's Bench Prison at St George's Field.[138] Amazingly, da Costa was incredulous at this treatment, and expressed his surprise at being "placed in a prison by a Society founded for promoting natural knowledge at a time while I was promoting natural knowledge in a course of lectures on fossils ...".[139]

But what did the rest of London, England, the world, think? In point of fact it was rather silent. Da Costa's fall was so little noted in the newspapers of the day as to be virtually absent. Where one would have expected daily press reports and

ephemeral accounts, we found nothing. If they ever existed, they have disappeared. His conditions in prison are exquisitely delineated, but not the public's view of his embezzlement and the wider response beyond the English Channel. The King's Bench was London's principal debtors' prison but was, with the Fleet, also its most lenient; Newgate it was not. By posting bail prisoners could enjoy the liberty of the neighbouring district, and his wife was able to live with him there, and presumably their daughter too.[140] But whilst it might be thought that this imprisonment, which underlined both da Costa's moral and financial shortcomings, would spell the end for his activities in natural history, it did not. He wrote to a friend of his good fortune in meeting "a family in the same unhappy situation of Prisoners who not only delight in Nat[ural] Hist[ory] but also in Music & painting & they having a fine large commodious & extreme pleasant room commanding an extensive prospect ...".[141] From their chambers he was able to continue delivering his fossil lectures to the public, and he even found new subscribers. Whilst observing that he had "experienced many vicissitudes & this present I fear is as harsh as any", he tried to look on the bright side and reflected that "however dreadful the situation is I alleviate it by study ... [and] pass the hours more serenely than perhaps I ever did before".[142] He even came to his senses a little. It was "the Almighty who has afflicted me with this confinement", and who "has through his mercies granted me the call of my reason, and I apply myself as much as ever, and assiduously to my studies".[142a] He used his time to establish his system of fossils, laying down his reasons for his method and collating it "with those of the best authors ...". This he considered to be "a Ground Work of the Science", and it was this system he presented in his course of twenty-seven lectures at the price of two guineas a subscriber. By March of 1770 he had given six courses to some thirty-three members of the public, and though he was having difficulty in finding further subscribers, he had decided not to publish them as this "undoubtedly would hurt me in reading any further courses".[143] He also found some other occasional employment: he revised and prepared for the press with a preface Cronstedt's *Essay towards a system of mineralogy* (1770), and he wrote the French parallel text for the first two volumes of Dru Drury's *Illustrations of natural history* (1770, 1773).[144]

Despite this work his friends did not expect him to find the means to pay off his debt. Drury wrote in January 1770 that da Costa was "confined in ye King's Bench Prison at ye instance of [the] Royal Society and has been there near a year, from whence, I imagine, he will never return".[145] And by March 1771 da Costa was in severe financial straits. He wrote to John Hawkeens that "a want of business this last winter indeed now renders me very low & I am forced to apply to my friend for some relief". He asked his old friend "if you will be so good to raise me a subscription among your friends in your town & the adjacent country as for an *unfortunate Gentleman in prison* without naming me and see what you could collect for my relief ...".[146] Hawkeens could only advise him to publish the books he was working on as soon as possible, and that he would help him in raising subscriptions for publication.[147] But things improved. Somehow — it is not clear how, perhaps a

friend came forward with a loan — he managed to make good his debts, and was discharged from the King's Bench on 8 October 1772.[148]

TOWARDS THE END

After his release he remained in London and continued lecturing, although his attempts to present them to students at Oxford University in 1774 was, after initial interest, rejected by the Vice-Chancellor. Da Costa was "very certain" that the failure of his proposal was "by means of some unfriendly and sinister misrepresentations ... against him". His suspicion was right.[149] He also resumed some of his former philosophical correspondences, at least with those few who forgave his fraud. Though no longer welcome at either the Royal Society or the Society of Antiquaries, who had revoked his Fellowship, he was gradually accepted back into segments of society. But despite his rare chance to succeed in life, he remained a man who seemed almost pathologically destined to fail. The psychological mechanisms triggering failure may forever remain hidden. They may have centred on the "Sephardim" in him — a Jewish-Iberian alienation flourishing in England — or may not have been lodged there at all. Alternatively, failure may have been pyschopathologically grounded in a much wider context than religious difference or the web of historical circumstances in which he told himself that he had been a victim — persecuted from the start. Religion, socially construed, may have played no part in the greed that compulsively propelled him to crime and eventually broke out of its own unreasonable boundaries. Such was da Costa's greed and natural excess that no amount of money, books, coins, fossils, specimens, was ever adequate; so he had to take that extra step. Yet paradoxically he was a survivor whose prison years had marred him less than they would have others. If he had not been as creative as Oscar Wilde, who profitably used the time to compose a *de profundis* while incarcerated, he nevertheless had kept sufficiently busy, as we saw, to remind the world he was not yet dead. He continued, indeed, for two more decades. If he were to give up now, in 1772–73, it would not be gaol that had done him in but something else. Conversely, if he had never taken that extra step, for which he was caught and imprisoned, he may well have sustained his old activities doing more of the same, and his niche in natural history would not have been significantly different from what it has become in two centuries. And his habitual excess and inherent natural greed? Where was the old insatiability now, as 1773 commenced?

In a meaningful sense we do not know, for nothing remains of da Costa's view of *himself*: despite the thousands of extant documents there is no self appraisal, no insightful revelation to anyone, no psychological disclosure of any self-reflective type. If he told his second wife and daughter anything, nothing survives; certainly not any explanations about the personal and private dimensions. We have seen how da Costa's character has been assessed almost entirely through the lens of his contemporaries; but we do not know what *he* thought of his own rise and fall, nor whether he adjudged himself to have changed as a result of his prison experience.

We know even less in the specific domain of greed and excess: the areas, on balance and in context, which have appeared to us most essential for understanding his character and persecutory psychopathology. Over the years we spent collecting materials and correlating their resonances, we kept wondering which "inner voices" da Costa heard about his apparent insatiability and what stories he told himself about his greed, before and after he was caught. And in many instances we found the response of his contemporaries to be less forthcoming than we would have wished. After imprisonment and release there were predictably many who forgave him, but they rarely revealed why, and the trail of gossip that must have been rife when he was first caught and then released has, of course, disappeared.

William Borlase charitably excused him: "Misfortunes we are all subject to ... and I shall not decline the correspondence of any man (much less of an old friend) till I perceive some latent vicious motive (which I know will never be your case)...."[150] Others were willing to become reintegrated with a man of such proven ability. As well as his lectures, he continued to earn money as a dealer and cataloguer of fossils and shells for wealthy collectors. In 1773 he told Thomas Pennant that he was doing no literary work, but was acquiring fossils for foreign collectors and offering assistance "to foreigners travelling through this kingdom ...".[151] The following summer he offered his services to the wealthy Lancastrian collector Ashton Lever (1729–88) who, da Costa had heard, was planning to set up his "elegant Museum for public inspection at Leicester House ...". Da Costa proceeded to explain that as "I am much at leisure & you are acquainted with my love for & my abilities in Natural History & my knowledge of languages I presume to offer my self to you as one of your Demonstrators of the Museum ... or to make any of your catalogues or to any other purpose in which I can be assistant in your said Museum".[152] Though he would later dedicate one of his books to Lever (*The British conchology*), this offer came to nothing. Lever, he observed, had "no science", but he had the one thing da Costa did not: money, "& by force of that alone gets an extensive & noble collection ...".[153]

A few years after his release from prison he was also able to regain some of the critical respect he had possessed earlier in his life. In 1776 *Elements of conchology: or, An introduction to the knowledge of shells* appeared, the study of shells being a natural development from his interest in fossils. In the opinion of the *Monthly review* (the mid eighteenth-century periodical that took such a hearty interest in natural history and reviewed its literature), the book had "the merit of perspicuity and precision to recommend it". Furthermore, the plates were "executed with great elegance, accuracy, and neatness, and Mr. Da Costa has by no means lessened his stock of reputation for natural science by this publication. His lectures on fossils are well known, and highly esteemed".[154] Da Costa there defined a shell as a "kind of stone-like calcareous covering or habitation, in which the whole animal, otherwise quite naked or fleshy ... lives included as in a house ...".[155] This definition thus excluded animals such as lobsters and crabs. The book offered a system of classification based upon the study of the shells themselves, rather than the animals

living within them. Whilst he admitted the criticism that by making shells "the present sole objects of our researches and collections, we consider these things but partially, or with a side view", shells were "the most obvious and strong characters ...".[156] A particular concern was

> to explode the Linnaean obscenity in his characters of the Bivalves; not only for their licentiousness, but also that they are in no ways the parts expressed. Science should be chaste and delicate. Ribaldry at times has been passed for wit; but Linnaeus alone passes it for terms of science. His merit in this part of natural history is, in my opinion, much debased thereby.... I therefore with due submission recommend to that otherways great naturalist, to change them, and expunge this reproachable obscenity from his works.[157]

He also expressed his continuing belief that Linnaeus,

> This most justly celebrated naturalist, notwithstanding the great adoration paid to him through Europe, I will be bold enough to declare, merits great and severe censure, for changing long-received and authorized names, to others which have as long and constantly conveyed a different received idea or meaning ... transportations of names, from one object to another, is not a trivial affair: it creates a vast confusion in sciences.[158]

In this enduring opposition da Costa was not hypocritical, as we have noted, yet he never explained his scientific or philosophical reasons contra Linnaeus. He merely repeated Tournefort's argument that the principles on which every system should be based must

> always be taken from the chief part of the objects, and not from several parts. This character should also be the constant one through the whole system, to preserve a perfect regularity.... On this maxim I shall build my system, and for all the turbinated Univalves, I shall fix on the aperture or mouth of the Shells as the head or chief character. For the Bivalves on the hinges, and for the Multivalves, on the number of valves.[159]

This continuing conservatism, this affront to tradition in the sciences, became his defining approach, and he notes later that "I reject all the systems hitherto broached ...".[160] Two years after his first book on conchology da Costa published *Historia naturalis testaceorum britannia, or, the British conchology; containing the descriptions and other particulars of natural history of the shells of Great Britain and Ireland* (London 1778), a parallel text published in English and French. It was dedicated to the eccentric collector Lever, owner of the public museum where he had sought a position. He made no claims to utility in his book. Shell collecting was "one of the many pursuits reserved for minds at ease; for minds disengaged from the tumult of business, and both disposed and at leisure to contemplate that immense variety of beauty which Nature hath scatter'd round us".[161] If it had any use, it was to draw us closer into the book of nature "which the *Great Creator* hath thrown open to man ...".[162] He quoted Alexander Pope, the poet who "had elegantly

express'd it, 'Looks thro' Nature up to Nature's God'".[163] He resisted any new ideas in natural history that challenged biblical authority. And in this tenacity he continued to demonstrate to what degree his natural history was sorely delimited: he was virtually incapable of innovation or making the imaginative leap. Bound by the Bible and its "geological" authority, his greatest accomplishment *had* been his collections. No wonder he was so naturally greedy in amassing and lording over their contents.

The British conchology was his last publication. After sixty-one years he would write no more; the solitary reason he gave himself was persecution. What the world saw as greed, he saw as victimization. Inside him da Costa had never felt genuinely encouraged by his peers; and when his innermost voice lacerated him about persecution he listened to its whispers and repeated them to his epistolary confidantes. In hindsight he seems to have calculated *all* his moves as an insider operating from the outside; as if alienated against himself on grounds that he had been a victim. The psychological sources of his doubt and vulnerability would require the skills of an accomplished psychobiographer, and we do not think the materials permit such deep-layered diagnosis further than we have taken it. Still, persecution of "the Jew of Crane Court" was the voice resonating within him over the decades, and it thundered after every crisis in his life. For example, he had told Pennant in 1763 — long *before* he went to prison — that he would despite "Discouragements ... continue my works & when publish'd let other nations judge whether I deserv'd the scorn & neglect my Countrymen have bestow'd so liberally upon me".[164] Here, internalized, was the alienated victim again: a psychomania based on persecution that never deserted him, and now caused him to stop writing and abandon natural history altogether. By 1779 he was moaning to Richard Hill Waring that when "a poor devil of an author" was spurned by subscribers even before he published, and deprived of his due monies afterwards, it had "sourd my temper and depressd my spirits so much that I am resolved to quitt all authorship & be no more the Scape Goat of our English Litterature ...".[165]

This "Scape Goat of our English Litterature" was the truest psychological da Costa; the disclosure is as proximate to self-analysis as can be found anywhere in his own writing. Da Costa continued to tell himself that he had been persecuted all his life; that prison was merely proof of his contemporaries' malice. His current threat was not empty (he published no more), yet he had not been "the Scape Goat" more than other excessive "natural history" grubs. Whenever lucre was present he was vigilant, and consumption of objects had always been the kingpin energizing his life, capable of shaping and determining his intellectual pursuits. Not surprisingly therefore his interest in natural history now evaporated, his outlook on the specimen-world soured. In 1780 he wrote in a somewhat nostalgic Hillian mood: "there is enough to be criticised of the present FRS[,] they really want a critick for the Transactions now publishd as very seldom it contains any quantity [?] of knowledge ...".[166] Ah, John Hill, England hast need of you now, da Costa may have been thinking; how useful a second edition of Hill's fierce attack, *A review*

of the works of the Royal Society, might be now, but nothing appeared. There were a few brief lapses. In 1783, da Costa helped form with some friends an "amicable society" which met once a month in Pimlico: with some seventeen members, they presented specimens, read papers and discussed them. And he was also presenting an abridged course of his lectures on fossils in one of the theatres at Guy's Hospital; but he felt that "encouragement & literary merit in one word is very scarce & low at present".[167] By 1785 he was informing George Edwards,

> Most of the Old Collectors have submitted to fate & few or no new ones arise[,] all sales & collections seem to be banish'd by the death of money & encouragement[.] in short Nat Hist is publickly degraded & vilified except by a few[.] I read very few lectures now and what with the bad state of the times & my advanced years I am appalld & tired with my studies & so damp'd in spirits as not even to retain a desire or wish of pursuing the studies any more[.][168]

Thus conclude in 1785, on a bitter and broken note, the vast annals of da Costa's letters in the British Library, an archive of almost 3,000 autograph letters on which we have mounted our case. By 1787–88 the worm of natural science had irrevocably turned for da Costa; even the new generation of naturalists during his old age was poisoned in its politics of encroachment, he felt. Besides, the rumblings of terror across the English Channel were threatening to spread home — there can be no doubt about the revolutionary meaning of "the bad state of the times", given the mentality of da Costa's correspondent — and the great scientific advances of the Enlightenment he had lived through would be crushed if a new revolution travelled across the water from France. For the first time in his life now spanning over eight decades he was actually sickened by natural history and natural philosophy. His rival Hill had been dead for over ten years and Folkes over thirty; yet da Costa had survived against the odds and would live on for another four, to the age of seventy-four. His excessive debacles, mechanisms of denial, and the final disgrace of imprisonment may not have ruined him, but now *he himself* felt finished. Was this the last, predictable, geriatric phase of a life that had gone on too long, or was his final gloom grounded in fairer causes? He died rather unnoticed in May 1791 at his lodgings in the Strand, doubtlessly less insatiable than he had been during the years of excess, just as Edmund Burke was appealing to the nation about the leviathan across the English Channel. He was buried quietly in the Sephardic Jewish cemetery in Mile End.

What can we learn from this long life in the service of natural history? Firstly, it should be clear by now that history's judgement of da Costa's scientific niche has *not* been determined by his disgrace — the lapse may have even rendered him more colourful and attractive to his contemporaries and to us. Even without his denials and excesses his stature after several centuries would be more or less where it is now. His biographical case was therefore radically different from Hill's, whose personality disorder interfered with, and we think genuinely altered, his rank for the

worse, and certainly different from Folkes's who pales by comparison. But this is da Costa's story, not Hill's or Folkes's or Stukeley's, and we believe that da Costa's accomplishments, when justly assessed and placed in context, are approximately where they would have been otherwise. In no sense, therefore, are we making a case for reclaimed genius or forgotten merit. More crucially, we may well ask why eighteenth-century England never produced a great figure in natural history like Buffon or Linnaeus, and whether da Costa ever regretted his choice of natural history as a means of social advancement. Clearly it was thought at one stage in Europe that "the Jew of Crane Court" *could* have been such a presence. Do we blame the man himself for his failure, or his circumstances and intellectual ability, or something else? Certainly, as Roy Porter has noted, once given a secure position at the Royal Society — a rare opportunity for anyone then, let alone "a little Jew" — da Costa seemed poised to publish a mass of material. This was no small advantage considering what publication signified in the world of Enlightenment natural science.[169] In this respect his grander ambitions were of his own making; like Hill — his perpetual *bête noire* and therefore no arbitrary biographical figure for constant comparison — he craved for position and sway in a milieu he could ill afford without scattering himself in many directions. By contrast Hill's exploits were risible and pathetic: the pretence that he was a great gentleman; da Costa's fantasies may have been less transparent, but their excesses were nonetheless injurious and as securely led to prison and the fall from public grace.

Yet perhaps da Costa's claims that he was never encouraged as he felt he deserved are fair in the end. The decay he witnessed and corrected in the Royal Society's repository and library was symptomatic of much broader decline in interest for this aspect of natural history. It was the case, as da Costa complained in 1762, that the Society was more interested in the transit of Venus than in fossils.[170] And there can be no doubt that it had run down its collections to a ruinous state. If this assessment is correct, and da Costa's lengthy accounts of the Royal Society between the 1740s and 1770s suggest it is, then his life and thought (however morally blemished) add substantially to our sense of the precise intellectual status of the Society as described in our previous paper. The Royal Society could not, of course, be expected to be all things to all men at all times in the eighteenth century. We have already averred that da Costa was not an original thinker or writer in the mould of Buffon and Linnaeus or even Haller and Tissot. He was inherently incapable of that, we think, in part as the result of his ingrained conservatism and also because imaginative discursive prose did not come easy to him. Nor was he a collector or classifier with the resources available to him to rival Linnaeus. His was an imagination that sadly refrained from pressing questions about the nature of his evidence. He appears not to have been interested, for example, in earthquakes — a popular topic at the Royal Society in the 1750s following those witnessed in London and reported in Lisbon. Having swallowed the diluvian arguments of Woodward all that remained for him to do — he thought — was collect and catalogue and resist the sexual "obscenities" of the Linnaean system. In these capacities even

Hill — no sexual puritan when faced with bisexual classification — was far more imaginative than da Costa.[171] Da Costa never published his own theory of the Earth, and he seems in himself illustrative of the conservatism of English natural history in this period.

What we derive from da Costa then is a glimpse of the limitations of scientific study in mid-eighteenth-century England, where wealth, patronage, and position were the keys to success, but also the dependence upon character and moral fibre. As a non-Anglican, a Jew, these were immediately limited for him; but these barriers were not — as we have emphasized — insurmountable in themselves. He had the friendship and assistance of all sorts of wealthy and influential men like John Fothergill and Martin Folkes and others. But, having tasted the benefits of the public sphere, he craved more influence, and like his so-called naturalist brothers and cousins, this proved his ruin, as it had been Hill's in part.

This form of excess raises a second point about the rivalry of collector-naturalists in England during the Enlightenment. We think it has been understimated and omitted in most recent discussions.[172] The often bitter rivalry among medics of all types — physicians, surgeons, empirics, and quacks — has been the subject of much commentary, to be sure, as has been the competition and enmity of grubs and hacks in the Enlightenment Republic of Letters. Yet enmity, jealousy, and rivalry were as fierce in the world of the da Costas and Hills and Folkeses and propelled much of their frantic activity and warfare against the mixed mathematicians within the Royal Society. Rivalry energized the collecting of specimens and the amassing of marbles to woo the great and the rich. Fracas was a natural way of life, yet has often been tamed by recent historians. These naturalists clammered for a patron, often found one, tasted the comforts of patronage, accustomed themselves to security, then grew greedy in the face of ever-greater material consumption. This was the cycle of their favourite pursuit. In da Costa's case the pattern was compounded by power politics and he became obsessive and compulsive, even manic, in the belief he could hide behind the buttress of his post. Eventually a false sense of security caused him to break the law.

Finally, the scientific achievement and a fair place in history. Ultimately da Costa's contribution was *not* to eighteenth-century natural philosophy but to its natural history. Here he will be remembered, no less than Addison-Steele and Horace Walpole in the republic of letters, and Edmund Burke in the republic of its developing politics. His fascination for us is that he can continue to engage our interest *without* having attained the wider Enlightenment perspective of an Addison or Walpole. The material portion and factual information contained in da Costa's vast correspondence is enormous, even irreplaceable — a vast archive for the historian of Enlightenment natural history and the roll of far-flung correspondence in the professionalization of science. Furthermore, any extensive revisionary history of the Royal Society during the eighteenth-century Enlightenment will omit him and his criticism of the Society's policies at its peril; just as it would the collectorial consumption and personal excess so pervasive in Georgian Britain.

Whilst only a generation after his death da Costa could have been largely forgotten — a will-of-the-wisp antiquarian memory among the European Romantic naturalist philosophers — the twentieth-century recovery and recognition of his name is not to be underestimated. It now remains to integrate him and his versions of excess and persecution into the larger, more diverse, European context of Enlightenment natural history.[173]

APPENDIX: THE DA COSTA ARCHIVES

Note: While we believe the list below covers all known collections in the United Kingdom it is nevertheless limited to archives we have examined ourselves; there may be others we have not seen.

Bodelian Library, Oxford

MS Eng. lett. d.45 [ff. 315–26]
MS Eng. misc. c.114 [ff. 58–59]
MS Radcliffe trust c.12 [ff. 13–14]
MS Don. d.88 [ff. 76–81, ff. 367–8]
MS Don. d.89 [f. 28]
MSS Eng. lett. c.359 [ff. 155–8]
MSS Eng. lett. c.361 [ff. 189–92, ff. 218–19]
MSS Eng. lett. c.367 [ff. 159–60]
MSS Eng. lett. c.368 [ff. 68–83, ff. 94–100]
MSS Eng. lett. c.370 [ff. 129]

British Library

Eg MS 2381, da Costa's minutes from the Royal Society (1757–62).
Add. MS 4303, 7 letters to Thomas Birch.
Add. MS 4439, letter to Hans Sloane.
Add. MS 4441, application for post of clerk to the Royal Society.
Add. MS 6180, da Costa's diploma from the Academiae Naturae Curiosorum.
Add. MS 9389, da Costa's MS catalogue of his library, 1781.
Add. MS 29867, da Costa's notes on genealogy and collectors.
Add. MS 23102 f. 123, letter to da Costa from Linnaeus.
Add. MS 29868: "Collections relating to the Jews".
Add. MSS 28534–44: 11 volumes of letters to and from da Costa, 1737–87, containing 2,487 autographs.

British Museum (Natural History), Palaeontology Library

Printed copy of da Costa's *Syllabus of a course of lectures on fossils* (London 1778) bound in a copy of his *History of fossils*.

Cambridge University, Fitzwilliam Museum

1749–76, correspondence and papers (19 items) [see *The manuscript papers of British scientists 1600–1940* (London, 1982)]. In the Perceval Collection (L90, 91, 93) a letter from da Costa to William Hunter, the latter's reply, and one from da Cost to Dru Drury.

Derby Central Library

c. 1748–67, correspondence and papers (*c*. 60 items).

East Riding of Yorkshire Archive Service, Hull (Humberside Archives)

The Constable–da Costa correspondence, 1760–66, and manuscript of 'Herbarium' in several volumes: Estate Archive, DDCC/145/1. Papers of William Constable of Burton Constable.

Linnaean Society, London

Two letters from Linnaeus to da Costa, Linnaean correspondence collection, 1757 and 1759. Reproduced in translation (Latin originals) in Smith, *op. cit*. (ref. 4).

Mocatta Library, University College, London

Four files, B 20 Cos and B 20 Men, transcript of wills and family records, including da Costa's will and his father's.

Natural History Museum, London

Drawings.

Royal College of Surgeons of England, London

Catalogue of fossils and notary business.

Royal Society of London

14 letters to the Society and other brief documents on miscellaneous natural philosophical subjects.

Warwickshire County Record Office

The Pennant Papers: TP408, Letterbook of Emanuel Mendes da Costa, NRA 23685 Pennant.

Wellcome Institute, London

3 letters (1748–62) to Antoine Réaumur (25 June 1748), Isaac Romilly (22 December 1756), A. P. Schrader (5 April 1762).

REFERENCES

1. G. S. Rousseau and David Haycock, "Voices calling for reform: The Royal Society in the mid-eighteenth century — Martin Folkes, John Hill, and William Stukeley", *History of science*, xxxvii (1999), 377–406.
2. The only substantial previous treatment of da Costa's life is P. J. P. Whitehead, "Emanuel Mendes da Costa (1717–91) and the *Conchology, or natural history of shells*", *Bulletin of the British Museum (Natural History), historical series*, vi (1977), 1–24 . On the Sephardic Jews in England and the da Costa family in general see Todd M. Endelman, *Radical assimilation in English Jewish history, 1656–1945* (Bloomington, 1990), 10–21, which we find authoritative; David S. Katz, "The Chinese Jews and the problem of biblical authority in eighteenth- and nineteenth-century England", *English historical review*, cv (1990), 893–919; and David S. Katz, *The Jews in the history of England, 1485–1850* (Oxford, 1994), 223–9. There are also discussions of Emanuel da Costa in C. H. Brock, "Dru Drury's *Illustrations of natural history* and the type specimen of *Goliathus goliatus* Drury", *Journal of the Society for the Bibliography of Natural History*, viii (1977), 259–65; Roy Porter, *The making of geology: Earth science in Britain, 1660–1815* (London, 1977), 114–15. Invaluable for constructing a new, revised context for natural history are the essays in N. Jardine, J. A. Secord and E. C. Spary (eds),

Cultures of natural history (Cambridge, 1996); P. Findlen's *Possessing Nature* (Berkeley and Los Angeles, 1994), for its astute discussions of the psychology of collecting and trading in natural history specimens; and Rhoda Rappaport, *When geologists were historians, 1665–1750* (Ithaca and London, 1997). For cliques and groups within the Royal Society at mid-century, see David Philip Miller, "The 'Hardwicke circle': The Whig supremacy and its demise in the eighteenth-century Royal Society", in *Notes and records of the Royal Society of London*, lii (1998), 73–91. Even these excellent professional studies grant the value of archival retrieval and biographically driven scholarship. For more general studies of the Jews in eighteenth-century England, see Cecil Roth, *A history of the Jews in England* (3rd edn, Oxford, 1978), and Jonathan I. Israel, *European Jewry in the age of mercantilism, 1550–1750* (rev. edn, Oxford, 1989), who provides a context for da Costa's Sephardic milieu in London in the middle of the eighteenth century. We use psychological resources in this analysis of da Costa as an historical figure, and agree with Michael Hunter when he claims in an essay in a volume psychoanalysing Robert Boyle that for such figures as Boyle and Newton "It could ... be argued that what is primarily required is historical sensitivity informed by the basic presuppositions of psychoanalysis, most notably the existence of a subconscious"; see Michael Hunter, "Robert Boyle (1627–91): A suitable case for treatment?", *The British journal for the history of science*, xxxii (1999), 261–75. Valuable information about the Enlightenment culture of luxury is found in John Sekora, *Luxury: The concept in Western thought, Eden to Smollett* (Baltimore, 1977), which touches on some of the concerns of this study, but not on the psychobiography of greed or the culture of excess which forms the heart of this analysis. Finally, we are indebted to the larger mapping of the Royal Society at mid-century that necessarily figures into any professional revisionist history. There were many groups *other* than the naturalists within the Society in the eighteenth century, and their activities could be productively compared to those of the naturalists (da Costa, Parsons, Stukeley, Baker, Arderon, Edwards, Borlase, Needham, Alchorne, Pulteney, Collinson, and many others) who constituted something of a critical wing and with whom they were often at war. It would be instructive to ascertain how the naturalists' criticism of the Society compared to the platforms of these other groups, but such work cannot be undertaken within an article that merely aims to establish an individual's biographical circumstances and its contexts. Besides, we adjudge it premature to launch these comparisons before archival retrieval and psychobiographical interpretation have been rigorously undertaken. History that removes real lives and their motives, which overlooks the narrative lines created by individuals in action, which abjures motive and emotion, which suppresses the private sphere in preference for the public, may ultimately be relegated to the neglected annals of professional specialization and find few readers.

3. Andrew Ducarel to da Costa, 24 August 1752, in John Nichols, *Illustrations of the literary history of the eighteenth century. Consisting of authentic memoirs and original letters of eminent persons* (8 vols, London, 1822–28), ii, 608. It is not known what these complimentary "handsome things" were, yet da Costa certainly had his detractors inside the Royal Society soon after his election, although by 1752 he was clearly at the centre of a critical wing of naturalists within the Society. Early that year (1752) James Parsons intended to contend the Secretaryship and wrote to da Costa requesting him to solicit support among "our forces"; see BL Add MS 28540 f. 183. The general charge against da Costa was that he was greedy, untrustworthy, importunate, and interfered in areas (especially elections) where he had no concern; specifically, that he was mean with his money and time and routinely sent correspondents inferior specimens: itself a type of swindle more difficult to prove and punish than the crime for which he eventually was imprisoned. To what degree all this early criticism was fair versus prejudiced, and how an image of da Costa developed and was sustained from the 1750s forward, forms part of the purpose of this study.
4. Peter Ascanius to Linnaeus, 7 April 1755, quoted in James Edward Smith, *A selection of*

the correspondence of Linnaeus, and other naturalists, from the original manuscripts (London, 1821), 482–3, translation from Latin original. The friend was probably John Fothergill; see below.

5. Linnaeus to da Costa, 9 November 1757, quoted in Smith, *op. cit*. (ref. 4), 488–9, English translation of Latin original.
6. Linnaeus to da Costa, 27 February 1759, quoted in Smith, *op. cit*. (ref. 4), 491–2, English translation of Latin original.
7. Da Costa to Ralph Schomberg, 18 May 1761, in Nichols, *op. cit*. (ref 3), iv, 766. Schomberg replied that he was "no stranger to the distinguished character you bear among the naturalists ...". Schomberg to da Costa, 21 May 1761, in Nichols, *op. cit*. (ref. 3), iv, 766. See da Costa's letter to Linnaeus, 5 October 1759: "I cannot but own, that the high honour of becoming a member of such a Society is the object of my most earnest wishes, as I have mentioned in a former letter. But as you pass over this subject in absolute silence in your last letter, I cannot but conjecture that I have been judged unworthy of the honour in question ...", Smith, *op. cit*. (ref. 4), 492–3. The da Costa–Schomberg connection unlocks the key to many of the Jewish connections discussed below.
8. *The gentleman's magazine*, lxxxi/2 (1811), 407. He did not apparently receive a response to the identity of "J. E. Raspe"; this was the Hanover-born naturalist and writer Rudolph Eric Raspe (1737–94), elected as an honorary Fellow following a Latin paper published in *Philosophical transactions*, lix (1770), 126–37 on fossil bones discovered in North America. The work generally attributed to him and for which he is now most famous is *Baron Munchausen's narrative of his marvellous travels and campaigns in Russia*, first published in London in 1785. Like da Costa, he came to a bad end. Passing himself off as a mining expert, he defrauded a Scottish knight out of large sums of speculative investment by claiming to have discovered signs of immense mineral deposits in the far north of the country in 1791. He escaped to Ireland where he died of scarlet fever.
9. *The gentleman's magazine*, lxxxii/1 (1812), 21–24. Whitehead attributes this letter to John Nichols. This branch of the family continued to produce distinguished professional men down through the nineteenth century: Jacob Mendes da Costa, in Emanuel's direct family line, became the President of the College of Physicians in Philadelphia in the late nineteenth century, and the first President of the Jefferson Medical School there.
10. Endelman, *op. cit*. (ref. 2), 10.
11. Endelman, *op. cit*. (ref. 2), 11.
12. Copy by da Costa of a letter from Thomas Knowlton to George Edwards, 28 July 1754, BL Add. MS 28539 f. 58/26. For Edwards see ref. 167. The da Costa correspondence in the British Library consists of eleven volumes of received letters and drafts of his replies. The order of letters has been numbered at least twice with no system appearing to be dominant. We have therefore quoted both numbers as they appear on the first facing page of the relevant letter. We have followed da Costa's orthography, but not his capitalization, which is often unclear or inconsistent. If a sentence ended at the edge of the page, or at the end of a paragraph, da Costa generally did not use a full stop. Complete sentences which end thus have been marked with a [.]. Sentences which have been cut by us are marked with ellipsis. On Jacob [Philip] Mendes da Costa's unsuccessful bid for his cousin's hand, see his *Proceedings at large in the Arches Court of Canterbury, between Mr. Jacob Mendes da Costa and Mrs. Catherine da Costa Villa Real, both of the Jewish religion, and cousin germans* [sic]. *Relating to a marriage contract* (London, 1734).
13. Endelman, *op. cit*. (ref. 2), 16.
14. Endelman, *op. cit.* (ref. 2), 16.
15. Da Costa to Borlase, "Bois le duc or Hertogenbosch", 16 June 1748, BL Add. MS 28535

f. 249/11.

16. Will of John Mendes da Costa, Lucien Wolf papers in the Mocatta Library, University College, London, quoted in Whitehead, *op. cit*. (ref. 2), 8.
17. BL Add. MS 28537 f. 157/143.
18. Da Costa to Knowlton, 10 July 1756, BL Add. MS 28539 f. 72/46. Knowlton apologized that he did not have funds enough himself to support his friend: Knowlton to da Costa, 23 October 1756, BL Add. MS 28539 f. 73/48.
19. Da Costa to Fothergill, 12 August 1761, 14 June 1762, 12 June 1762, BL Add MS 28537 f. 154/139, f. 156/141, f. 158/144. Fothergill (1712–80) made a collection of rare plants at his estate at Upton, near Stratford.
20. Da Costa to Anthony Tissington, 31 March 1747, BL Add. MS 28543 f. 392/239.
21. Da Costa, to Pennant, 4 April 1752, Pennant Papers, Warwickshire County RO, TP408, letter 2.
22. Da Costa to Mrs Elizabeth Thomas, 16 September 1760, BL Add. MS 28543 f. 216. He advised her to keep an account of her expenses so he could repay her. For a long letter illustrating the sort of requests he made to his correspondents, see da Costa's letter to Dr Charles Morton, 1 July 1751, in Nichols, *op. cit*. (ref. 3), iv, 757–9.
23. Da Costa to Pennant, 21 May 1752, Pennant Papers, Warwickshire County RO, TP408, letter 6.
24. Da Costa to Borlase, 9 July 1763, BL Add. MS 28535 f. 345/152.
25. Borlase wrote that "every one gives a most hopefull acct. of that adventure ...", Borlase to da Costa, 15 July 1763, BL Add. MS 28535 f. 346/153. Da Costa does not refer to this "adventure" again throughout his correspondence.
26. J. A. Buckley, *The Cornish mining industry: A brief history* (Penryn, 1992), 14–18.
27. *Dictionary of national biography*; John Coakley Lettsom, *Some account of the late John Fothergill, M.D.* (London, 1783), pp. ciii–civ.
28. Da Costa to Thomas Knowlton, 10 March 1764, BL Add. MS 28538 f. 99/79.
29. *The monthly review*, lvi (1777), 92.
30. Horace Walpole, *Memoires of the last ten years of the reign of George the Second* (London, 1822), i, 310–11, quoted in Katz, *op. cit.* (ref. 2), 6.
31. Endelman, *op. cit*. (ref. 2), 21.
32. Endelman, *op. cit*. (ref. 2), 21.
33. Nichols, *op. cit*. (ref. 3), iv, 636, Folkes to da Costa, 9 August 1747.
34. Nichols, *op. cit*. (ref. 3), iv, 637, Folkes to da Costa, 28 August 1747.
35. Stukeley's diary, 11 April 1759, Bodleian Library, MS Eng. misc. e. 138.
36. Da Costa to Knowlton, 10 July 1756, BL Add. MS 28539, f. 72/46.
37. Thomas Birch to da Costa, 18 January 1763, Nichols, *op. cit*. (ref. 3), iv, 540.
38. Da Costa to Pennant, 9 February 1763, Pennant Papers, Warwickshire County RO, TP408, letter 175.
39. Da Costa to James Ducarel, 10 March 1752, Nichols, *op. cit*. (ref. 3), iv, 605–6. See Katz, *op. cit*. (ref. 2).
40. Da Costa to Samuel Pegge, 28 July 1757, Bod. MS Eng. lett. d. 45 f. 315.
41. Quoted in Michael Hunter, *Science and society in Restoration England* (Cambridge, 1981), 37.
42. *Ibid*.
43. See Michael Hunter, "The cabinet institutionalized: The Royal Society's 'repository' and its background", in Oliver Impey and Arthur MacGregor (eds), *The origins of museums: The cabinet of curiosities in sixteenth- and seventeenth-century Europe* (Oxford, 1985), 159–68.
44. See his *Lectures and discourses of earthquakes and subterraneous eruptions*, in Richard Waller (ed.), *The posthumous works of Robert Hooke* (London, 1705), 210–450.

45. William Stukeley, Library of the Grand Lodge of Freemasons, London, MS 1130 Stu (1) f. 125.
46. Da Costa to J. Hale, 30 April 1784, BL Add. MS 28,538 f. 366/3.
47. Samuel Clarke, *A discourse concerning the unchangeable obligations of natural religion, and the truth and certainty of the Christian revelation*, 4th edn (London, 1716), 254.
48. John Woodward, *An attempt towards a natural history of fossils in England, in a catalogue of the English fossils of J. W.* (London, 1728–29), i, pp. xiii–xiv.
49. Quoted in Joseph Levine, *Dr. Woodward's shield: History, science and satire in Augustan England* (London, 1977), 95.
50. See *Dictionary of national biography*.
51. From *The spectator*, quoted in G. S. Rousseau, "Science books and their readers in the eighteenth century", in Isabel Rivers (ed.), *Books and their readers in eighteenth-century England* (Leicester, 1982), 197–255, p. 202.
52. E. M. Da Costa, *Historia naturalis testaceorum Britannia* (London, 1778), Preface, p. vi.
53. Paolo Rossi, *The dark abyss of time: The history of the Earth and the history of nations from Hooke to Vico* (Chicago, 1984), Introduction.
54. See da Costa's correspondence with Revd William Huddesford of Trinity College, Oxford, in Nichols, *op. cit*. (ref. 3), iv, 456–76, and da Costa to Anthony Tissington, 27 January 1747, BL Add. MS 28543 f. 232. Tissington had written of Woodward's book "it really has so little in it, either of Truth, or pleasing Romances, that tis quite Drudgery to read it". Tissington to da Costa, 7 January 1747, BL Add. MS 28543 f. 228.
55. Da Costa to Revd John Clarke, rector of Padworth, Berkshire, 14 November 1747, BL Add. MS 28536 f. 32/43.
56. Da Costa to Borlase, 26 March 1751, BL Add. MS 28535 f. 279/60.
57. Da Costa to Waring, 4 November 1780, BL Add. MS 28544 f. 537/72. Da Costa also noted that he kept his letters in a "very careful manner ... in bound folio books of blue paper & only pin the letter each in chronological order". He did not paste them in "for that hurts loose papers".
58. Pallas to da Costa, 10 November 1764, BL Add. MS 28540 f. 279/173. Pallas (1741–1811) had visited England and met da Costa at the Royal Society, to which he was elected a Fellow in 1763. Anne Goldgar in *Impolite learning: Conduct and community in the republic of letters, 1680–1750* (New Haven and London, 1995) has isolated the complex role of correspondence among scientists in the republic of letters as proof that a particular scholar or individual enjoyed status within the scientific community, and even occupied a particular position within that community; see Goldgar, *op. cit.*, 29. It certainly seems applicable to da Costa.
59. Da Costa to Pallas, 18 January 1765, BL Add. MS 28540 f. 280/175.
60. For the awful episode with Platt see Joseph Platt to Peter Collinson, BL Add. MS 28727 f. 98/99, which incorporates da Costa's verbatim replies; for the Pennant affair see Pennant to da Costa, Pennant Papers, Warwickshire County RO, TP408 letter 100, verso.
61. There is no biography or *DNB* life. The late Elizabeth and Joseph Hall embarked on a biography but did not publish it. Constable's correspondence with da Costa is in the Hull City Library and Humberside Archives (ERAS). Much information is also found in the Burton Constable Muniments, Yorkshire. We are grateful to Jasmine Myers who permitted the use of Constable's herbarium at Burton Constable and entry to the Humberside Archives before it was moved to ERAS. Constable's brother Marmaduke inherited some of the collections of Joseph Banks, FRS, which were dispersed in the early nineteenth century.
62. Rousseau's almost daily correspondence with Constable in May 1770, when Constable was twenty-nine, documents the near-visit; see R. A. Leigh (ed.), *Correspondance complète de*

Jean Jacques Rousseau (51 vols, The Voltaire Foundation, Oxford, 1981), xxxviii, 12 May – 12 October 1770, pp. 9–123 *passim*, suggesting that the purpose of Rousseau's visit would be botanical. The portrait of Constable dressed as Rousseau is in the Leeds City Art Gallery and was reproduced in *Country life*.

63. See G. S. Rousseau, *The letters and papers of Sir John Hill* (New York, 1982), 203, for the references to Lord Petre.
64. See Royal Society Minutes, 4 May 1775.
65. See da Costa to Constable, 4 July 1764, ERAS, Estate Archive, DDCC/145/1.
66. Hill published *The vegetable system* (1759–75) in 26 vols under the patronage of the Earl of Bute and with the aid of pre-paid subscribers.
67. Nowhere in the Constable archives have we found any mention of the amounts involved.
68. Da Costa to Green, 5 May 1747, BL Add. MS 28537 f 284/304.
69. Da Costa, *A natural history of fossils*, i/1 (London, 1757), Preface, p. iii.
70. *Ibid*., p. iv.
71. *Ibid*., pp. iv–v.
72. *Ibid*., pp. v–vi.
73. John Lyon and Philip R. Sloan (eds), *From natural history to the history of nature: Readings from Buffon and his critics* (Notre Dame, 1981), 107.
74. Lyon and Sloan, *op. cit*. (ref. 73), 115.
75. Da Costa to Borlase, 3 January 1760, BL Add. MS 28535 f. 315/108.
76. Da Costa to Pierre Ascanius, 26 September 1760, BL Add. MS 28534 f. 96/131.
77. *The monthly review*, xix (1758), 444–54.
78. Da Costa to Thomas Knowlton, 20 July 1758, BL Add. MS 28539 f. 82/58.
79. Porter, *op. cit*. (ref. 2), 115.
80. "An Account of the Impressions of Plants on the Slates of Coals: In a Letter to the Right Honourable George Earl of Macclesfield, President of the R.S. from Mr. Emanuel Mendes da Costa, F.R.S.", *Philosophical transactions*, l (1757–58), 228–35, p. 232
81. Da Costa to J. Hale, 30 April 1784, BL Add. MS 28538 f. 366/3.
82. *Ibid.*
83. Henry Baker, "A letter ... concerning an extraordinary large fossil Tooth of an elephant", *Philosophical transactions*, xliii (1745), 331–5. As Rappaport notes, "not a single element in [Baker's] tissue of suppositions was new. Among British writers alone, Hooke and Edmond Halley, Thomas Burnet and Abraham de la Pryme had discussed all these conjectures". Rappaport, *op. cit*. (ref. 2), 118.
84. Da Costa to J. Hale, 30 April 1784, BL Add. MS 28538 f. 366/3.
85. Stukeley's diary, 23 January 1752, Bod. MS Eng. misc. e.132 ff. 18–19.
86. Da Costa, "Minutes of the Royal Society", 22 March 1759, BL Add. MS Eg. 2381 f. 87.
87. Borlase to da Costa, 21 July 1759, BL Add. MS 28535 f. 308/100.
88. Da Costa to Borlase, 23 August 1759, BL Add. MS 28535 f. 311/103.
89. Needham to da Costa, 22 October 1749, BL Add. MS 28540 f. 207/73. Needham (1713–81) was an English Catholic. He became a priest in France in 1738, and was elected FRS in 1747; he worked with Buffon in Paris, retiring to the English seminary there in 1767, and was chosen a member of the Royal Academy of Sciences in 1768.
90. Da Costa to Needham, 18 October 1749, BL Add. MS 28540 f. 209/75.
91. Da Costa to Watkins, 9 November 1749, Bod. MS Eng. Lett. c.368 f. 74.
92. Watkins to da Costa, 14 November 1749, Bod. MS Eng. Lett. c.368 ff. 72–73.
93. Watkins to da Costa, 29 April 1752, Bod. MS Eng. Lett. c.368 f. 76.

94. In a letter to Watkins of 16 January 1750, da Costa explained that though he had selected over a hundred "curious & rare fossils he had heard the Museum had no cases for them, and had for this reason not sent them". Da Costa to Watkins, 16 January 1750, BL Add. MS 28544 f. 614/181.
95. Borlase to da Costa, 25 March 1752, BL Add. MS 28534 f. 288/75.
96. Da Costa to Borlase, 15 February 1759, BL Add. MS 28535 f. 306/97.
97. Borlase to da Costa, 19 March 1759, BL Add. MS 28535 f. 307/98.
98. Da Costa to Borlase, 14 July 1759, BL Add. MS 28535 f. 308/99.
99. Da Costa to Borlase, 3 January 1760, BL Add. MS 28535 f. 315/107.
100. BL Add MS 29867 f. 43; Whitehead, *op. cit*. (ref. 2), 8.
101. Da Costa to Revd Samuel Chandler, 19 January 1763, BL Add. MS 28536 f. 36/40.
102. Da Costa to Mr Thomas Bolton, florist at Worraly Clough near Halifax, 10 March 1764, BL Add. MS 28534 f. 239/345.
103. Da Costa to Borlase, 19 March 1765, BL Add. MS 28535 f. 351/160.
104. Da Costa to Needham, 9 December 1766, BL Add. MS 28540 f. 226/96.
105. Needham to da Costa, 12 February 1767, BL Add. MS 28540 f. 229/101.
106. Royal Society, Council Minutes, v, ff. 220–2; these were items da Costa claimed as his own on his expulsion from the Society.
107. Da Costa to Borlase, 12 October 1765, BL Add. MS 28535 f. 356/165.
108. Da Costa to Borlase, 19 March 1765, BL Add. MS 28535 f. 351/160.
109. Da Costa to Borlase, 25 February 1766, BL Add. MS 28535 f. 613/171.
110. *Ibid.* Such an MS is not recorded in the Royal Society's archives.
111. Da Costa to Borlase, 14 October 1766, BL Add. MS 28535 f. 364/174.
112. Da Costa to William Hunter, 10 January 1771, Spencer-Perceval Papers, Fitzwilliam Museum, Cambridge; quoted in Brock, *op. cit*. (ref. 2), 260.
113. Dru Drury to Pallas, 12 November 1767, quoted in Whitehead, *op. cit*. (ref. 2), 19. Da Costa told Hunter "my intended book was to consist of four plates to each number ...", da Costa to William Hunter, 10 January 1771, Spencer-Perceval Papers, Fitzwilliam Museum, Cambridge; quoted in Brock, *op. cit*. (ref. 2), 260. The completed plates were among da Costa's possessions auctioned after his fall from grace.
114. On this episode, and an account of Hill's life and correspondence, see Rousseau, *op. cit.* (ref. 63); the second volume of this biography is in progress.
115. Da Costa to Needham, 7 July 1747, BL Add. MS 28540 f. 200/64.
116. Da Costa to Pierre Ascanius, 26 September 1760, BL Add. MS 28535 f. 96/132.
117. Da Costa to John Reinhart Gerard Andrea, a German apothecary whom da Costa had met in England, 2 March 1762, BL Add. MS 28534 f. 70/98.
118. From two different sources: da Costa to Thomas Knowlton, 8 February 1757, BL Add. MS 28539 f. 74/49; da Costa to Richard Hill Waring, 28 September 1780, BL Add. MS 28544 f. 540/77.
119. See Rousseau and Haycock, "Voices" (ref. 1). In both our studies we have been aiming to document the existence of a wing of naturalists within the Royal Society at mid-century, but we do not claim that excess was its common, even communal, hallmark more so than excess would have been found in other circles of the Society. A comparative study of various circles at mid-century could well reveal and document that excess was rampant but we do not have the evidence to show it. What we *do* claim is that English life at large was then permeated with excess and that it spilled over to its professional foundations, and even ruined the lives of some of the naturalist groups and of its luminaries, such as da Costa.

120. David Allen makes the point in *The naturalist in Britain: A social history* (London, 1976), 29.
121. See Rousseau, *op. cit.* (ref. 63).
122. Rousseau, *op. cit*. (ref. 63), letters 127–8.
123. Da Costa, *op. cit*. (ref. 116).
124. Rousseau, *op. cit*. (ref. 63), letters 180, 183.
125. Rousseau, *op. cit*. (ref. 63), letter 183.
126. Da Costa to George Witchell, Mathematical Master of the Royal Academy at Portsmouth, 11 July 1767, BL Add. MS 28544 f. 646/223; da Costa to Joseph Priestley, 14 June 1766, in Nichols, *op. cit*. (ref. 3), iv, 541. According to da Costa's letter to Priestley the lump sum in 1766 was 25 guineas, by 1767 and the letter to Witchell it was 31 guineas.
127. Pennant to da Costa, 2 July 1762. Pennant Papers, Warwickshire County RO, TP408, letter 165.
128. Whitehead, *op. cit*. (ref. 2), 8.
129. See Katz, *op. cit*. (ref. 2), 243–4, 270–3. Imprudent financial speulations led to Salvador's own ruin, and in 1784 he emigrated to extensive estates he had previously purchased in South Carolina, where he died. Salvador clearly forgave his cousin his indiscretions, as there exist friendly letters between the two men, including some interesting remarks on America, in BL Add. MS 28542 ff. 176/90 and 177/93.
130. Whitehead, *op. cit*. (ref. 2), 9.
131. Royal Society, Minutes of Council, v (1763–68), ff. 211–13. This meeting is incorrectly cited as having taken place on 3 June 1767 in Whitehead, *op. cit*. (ref. 2), 9.
132. Penneck to Borlase, 19 December 1767, quoted in P. A. S. Pool, *William Borlase* (Truro, 1986), 238–9.
133. Borlase to Lyttelton, 28 December 1767, quoted in Pool, *op. cit*. (ref. 132), 239.
134. Lyttelton to Borlase, no details given, quoted in Pool, *op. cit*. (ref. 132), 239; Thomas Pennant to Joseph Banks, 25 December 1767, quoted in Whitehead, *op. cit*. (ref. 2), 9. William Stukeley, from whom we would also have expected comment on his friend's disgrace, had died in 1765.
135. Needham to da Costa, 15 February 1768, BL Add. MS 28540 f. 236/113.
136. Da Costa to John Anderson, 14 July 1768, BL Add. MS 28534 f. 21/27.
137. *The gentleman's magazine*, lxxxii/1 (1812), 24.
138. Details of da Costa's case are in the Public Record Office, PRIS. 4, 4: 203. See Whitehead, *op. cit*. (ref. 2), 10.
139. Da Costa to Stanesby Alchorne, 21 February 1769, BL Add. MS 28534 f. 5/6.
140. See Richard Byrne, *Prisons and punishments of London* (London, 1989), 61, 107–9, and J. S. Cockburn (ed.), *Crime in England, 1550–1800* (London, 1977). A more famous inmate during da Costa's stay was John Wilkes, who was briefly imprisoned at the King's Bench in 1770. The prison was destroyed during the Gordon Riots in 1780 but rebuilt shortly after.
141. Da Costa to Stanesby Alchorne, 21 February 1769, BL Add. MS 28534 f. 5/6.
142. Da Costa to John Hawkeens, 20 March 1770, BL Add. MS 28538 f. 459/119. Da Costa's interior dialogue with himself about "the Almighty" occurred a few weeks earlier, in January, and was recounted in a letter dated 3 January 1770 to Frank Nicholls; see Nichols, *op. cit.* (ref. 3), iv, 760.

142a. Nichols, *op. cit*. (ref. 3), iv, 760, da Costa to Frank Nicholls, 3 January 1770.

143. Da Costa to John Hawkeens, 20 March 1770, BL Add. MS 28538 f. 459/119.
144. A. Cronstedt, *An essay towards a system of mineralogy ... translated from the original Swedish, with notes by Gustav von Engestrom. To which is added, a treatise on the pocket-laboratory.... The whole revised and corrected, with some additional notes, by Emanuel Mendes da Costa*

(London, 1770); Whitehead, *op. cit*. (ref. 2), 12.

145. Dru Drury to Pallas, 14 January 1770, letter-book of Dru Drury, British Museum (Natural History), quoted in Whitehead, *op. cit*. (ref. 2), 13.
146. Da Costa to John Hawkeens, 7 March 1771, BL Add. MS 28539 f. 460/121.
147. Hawkeens to da Costa, 2 April 1771, BL Add. MS 28539 f. 461/122.
148. Public Record Office, PRIS. 4, 4: 203, marginal note; Whitehead, *op. cit*. (ref. 2), 13.
149. See Nichols, *op. cit*. (ref. 3), iv, 516–19 for the reasons and analysis; Da Costa's own explanation is found in a letter to Professor Thomas Hornsby, 5 May 1774, in Nichols, iv, 518.
150. Borlase to da Costa, 13 July 1772, quoted in Pool, *op. cit*. (ref. 132), 269–70.
151. Da Costa to Thomas Pennant, 16 January 1773, Pennant Papers, Warwickshire County RO, TP408, letter 178.
152. Da Costa to Ashton Lever, 20 August 1774, BL Add. MS 28539 f. 48/161.
153. Da Costa to Richard Hill Waring, 29 January 1778, BL Add. MS 28544 f. 499/18.
154. *The monthly review*, lvi (1777), 96.
155. Da Costa, *Elements of conchology* (London, 1776), 2.
156. *Ibid.*, 10, 19.
157. *Ibid.*, pp. iv–v.
158. *Ibid.*, 97–99.
159. *Ibid.*, 132–3.
160. *Ibid.*, 181.
161. Da Costa, *Historia naturalis* (ref. 52), Preface, p. v.
162. *Ibid.*, Preface, p. vi.
163. *Ibid.*, Preface, p. viii.
164. Da Costa to Pennant, 9 February 1763, Pennant Papers, Warwickshire County RO, TP408, letter 175.
165. Da Costa to Waring, 23 October 1779, BL Add. MS 28544 f. 517/44. He noted ruefully the following year that he printed "too many of his last book, viz 750 copies". Da Costa to Waring, 23 March 1780, BL Add. MS 28544, f. 527/58. Da Costa's thousands of letters contain many such persecutory revelations to his correspondents, for which reason we think an approach such as Michael Hunter's for Boyle possible; see Hunter, *op. cit.* (ref. 2).
166. Da Costa to Waring, 23 March 1780, BL Add. MS 28544 f. 527/58. Waring — who lived in Flintshire — mentioned that he had heard that Hill's widow was considering publishing a new edition of this work. Hill himself had been dead for five years.
167. Da Costa to George Edwards, 14 and 26 August 1783, BL Add. MS 28536 f. 8/255; this was not the naturalist (see ref. 12) but George Edwards, M.D. (1752–1823), a prolific writer on "human economy", a physician in London and then at Barnard Castle in Yorkshire where one of da Costa's letters to him is addressed. This Edwards, unrelated to the naturalist of the previous generation, was an ardent Gallican supporter and persuaded of his political mission to proselytize among the English, yet medically an obscure figure. His interest in the French Revolution gave rise to notions doubting his sanity; he published several addresses in French on France's "Nouvelle Constitution". The other Edwards (1694–1773) was an altogether different character towards whom da Costa had been less inimical than the now dead Hill had been in the 1750s, and with whom he openly discussed scientific subjects. Hill, on the other hand, had been ravished by jealousy of Edwards's productivity at the time Hill was canvassing for support of the Royal Society. When Edwards published his third volume of natural history in 1750, *The history of birds*, Hill satirized him as a foreigner from the Americas and lampooned his flawed theories in a full-length novel, *The adventures of Mr George Edwards, a creole* (London, 1751); see especially the scenes about robin red-breasts and

other birds in Chapter 2, "An Ichthyological Dissertation upon a dry'd Whiting". It is crucial to keep the two Edwards distinct.

168. Da Costa to George Edwards, 7 February 1785, BL Add. MS 28536 f. 11/259.

169. For the significance of publication in da Costa's milieu see G. S. Rousseau, "'Stung into action ...': Medicine, professionalism, and the news", in J. Raymond (ed.), *News, newspapers and society in early modern Britain* (London, 1999), 177–81, 202–3, and Porter, *op. cit*. (ref. 2).

170. Da Costa to John Reinhart Gerard Andrea, 2 March 1762, BL Add. MS 28534 f. 70/98.

171. See Rousseau, *op. cit*. (ref. 51), 76–94, for discussion of Linnaeus's bisexual system by naturalists Richard Pulteney, Hill *et al*. There is no evidence whatever that the ageing da Costa read any of Erasmus Darwin's "sexual obscenities" in his (da Costa's) last few years of life, 1786–91, not even the *Loves of the plants* (1789).

172. An exception is Anne Goldgar's instructive *Impolite learning* (New Haven, 1995) dealing with the animosity of different scientific groups viewed from a Continental perspective.

173. As found, for example, in the broad discussion of the cultures of natural history in Jardine *et al*. (eds), *op. cit*. (ref. 2).