THE YORK BUILDINGS DRAGONS: DESAGULIERS, ARBUTHNOT AND ATTITUDES TOWARDS THE SCIENTIFIC COMMUNITY

by

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The growing public awareness of natural philosophy and technology in the eighteenth century brought with it unintended consequences, including an enlarged space for satiric treatments of scientific issues, which have not always been recognized for what they are. A pamphlet entitled *The York Buildings Dragons* appeared in December 1725, with a second, augmented, edition in January 1726. It has generally been attributed to John Theophilus Desaguliers FRS (1683–1744), the Huguenot engineer, Newtonian expositor and leading Freemason. This article throws fresh light on the pamphlet: to provide more extensive background to the work, to describe its aims and methods, to define its mode as entirely satiric, to analyse its contents in greater detail, to show that Desaguliers cannot possibly have been the author and to suggest as a more plausible candidate the mathematician, physician and satiric author John Arbuthnot FRS (1667–1735). Historians of science and technology need to take care in assessing the pamphlet literature surrounding controversial innovations.

Keywords: Newtonians; water supply; attitudes to science; John Theophilus Desaguliers; John Arbuthnot

INTRODUCTION

This article concerns a pamphlet published in 1725 and 1726 which deals in a seemingly flippant manner with the events surrounding a new scheme for piping water to Marylebone, then on the northern fringe of London. It is in no sense a work of science, yet it was clearly written by someone with some background in mathematics and medicine as well as a close acquaintance with the mathematicians, surveyors and engineers who were helping to spread Newtonian ideas. The work also sneers at the popularizers of Newton who gave lectures at venues such as Button’s coffee-house near Covent Garden. Close analysis of the text makes it possible to detect the role played by some obscure practitioners in this field and to establish new connections between them. The pamphlet expresses attitudes contrary to those with which we have grown accustomed, and represents a vein of hostility towards public science that has largely been

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overlooked by historians. Jonathan Swift’s satire on the Royal Society in *Gulliver’s Travels* (1726) is well known, but it represents only the most obvious of attacks published by like-minded authors. The pamphlet exhibits a set of attitudes on allegedly fruitless experimentation, matched in works by Swift, Alexander Pope, John Gay and John Arbuthnot, which took a sceptical line on matters such as the quest for the longitude, the use of burning glasses and new efforts in hydrology.

The story of the ‘York Buildings Dragons’ hinges on the pamphlet which appeared under that title in December 1725, with a second, augmented, edition the following month. It has been attributed to John Theophilus Desaguliers FRS (1683–1744), the Huguenot engineer, Newtonian expositor and leading Freemason. The work is assigned to Desaguliers by the *Eighteenth-Century Short Title Catalogue* and by the libraries which hold the extremely rare copies. Students can consult both versions of the *Dragons* (henceforth *YBD*) on Eighteenth Century Collections Online, again catalogued under the authorship of Desaguliers. The only full scholarly investigation has been conducted by Larry Stewart, who saw that the pamphlet ‘pilloried those “Ingenious Gentlemen” who opposed the new engine and who even had their own to sell’. He adds that ‘Desaguliers was evidently settling several scores. But the tract also embarrassed York Buildings’. 1 Audrey T. Carpenter’s biography of the polymath devotes two pages to *YBD* and briefly questions the attribution.2

In this article, I seek to throw fresh light on the pamphlet: specifically, to provide more extensive background to the work, to describe its aims and methods, to define its mode as entirely satiric, to analyse its contents in greater detail and to support the conclusion that Desaguliers is extremely unlikely to have been the author. Stewart revealed uncertainty about the assignment, while acknowledging the ‘circumstantial evidence’ that pointed in his direction, and concluded: ‘Perhaps Desaguliers’ dissatisfaction over payment for his services might have been an issue sufficient for him to want to reflect on the power of “PLUTUS”: but this merely suggests a possible motive’. New evidence assembled here indicates a different source for the satire. In his influential book, Stewart gave an account of members of the ‘club’ of engineers and entrepreneurs who figure in *YBD*, but he was unable to identify two names on the list: the clerical impresario, John Henley, and the mathematician, Samuel Cunn. The identification of Cunn adds weight to the view, tentatively sketched by Stewart, that it was the rival Colne River group (with whom Desaguliers had briefly been involved) who form the target of the attack in *YBD*. Any blows that land on the York Buildings Company itself are light and easily evaded. Other figures in the text identified for the first time include the apothecary and physician, Sir John Colbatch; the medical patentee, Dr Robert Eaton; the inventor of a ‘burning glass’, François Villette; ‘M. Hugon’, actually Christiaan Huygens, for his telescope; and the surgeon, Guillaume Desnoues, responsible for waxwork anatomical models. These references to popular scientific ‘shows’ go along with unexplored allusions to the theatrical harlequinades that had taken the town by storm. 3

Among further items glossed is a mention of a donation to the Royal Society by the celebrated Richard Mead FRS, physician and collector.

The evidence enables us to locate a more plausible candidate for the authorship of this pamphlet, who called the last-named figure ‘My Brother Mead’. This was the mathematician, physician and satiric author, John Arbuthnot FRS (1667–1735), a much less active Freemason than Desaguliers. Arbuthnot had created one national stereotype in 1712 with his character John Bull; the dragons represent another mythical fabrication for
polemical ends. The grounds for this ascription depend on a recognition that the impetus for the satire comes from within the ranks of the Company. *YBD* supports the initiative of the Duke of Chandos, a major shareholder in the firm and a long-time friend of Arbuthnot, to establish the pipeline from the Thames to Marylebone with the aid of a new pumping engine constructed by Desaguliers. Its scorn is directed against those involved in a rival project to deliver water to Marylebone from the River Colne near Uxbridge. Their fears concern the designs of ‘Plutus’, a name which can only refer to the plutocrat Chandos.

**BACKGROUND**

In 1725, the York Buildings Company was emerging from a chequered phase in its history. With its roots in a royal patent from 1675, it was reincorporated in 1691 as ‘The Governor and Company for raising the Thames Water at York Buildings’. This title refers to a development on the south side of the Strand adjacent to the modern Charing Cross station; water was drawn from the river, led into sluices and then pumped to the surface. The enterprise did not achieve high profits, but for 20 years survived in relative obscurity: ‘From day to day during the reign of Queen Ann[e] the creaking horse gin turned slowly to fill the cisterns in York Buildings, and the Company quietly performed its duty of supplying the inhabitants of the district with water at reasonable rents.’ The frenzied climate of the Bubble era offered the chance to make money more rapidly. In 1719, the business was bought by a syndicate led by the shady operator, Case Billingsley, who soon began to extend the company’s activities beyond the remit of its charter.

Billingsley was a solicitor who had been involved in the formation of the marine insurance company which became the Royal Exchange Assurance in 1720. The firm’s first move, into the purchase of forfeited Jacobite estates, sent its stock price soaring. Billingsley’s idea was to sell shares to the public and use the proceeds to underwrite his insurance activities. Following the passage of the Bubble Act in June 1720, an attempt to protect the vulnerable South Sea Company with its massive borrowing, the government threatened to launch legal proceedings against York Buildings and other companies operating outside their charter. This caused the share price to fall just as precipitously, following a call on shareholders of 23%, without having the desired effect of keeping up the value of South Sea stock. Despite this, Billingsley was allowed to set up three lotteries with official sanction, held between December 1721 and November 1723. Following complaints about irregularities, investigation revealed corrupt practices of the sort that plagued Billingsley’s activities. Moreover, in June 1724 he applied for a patent for a water-engine to put out fires, particularly useful in draining mineshafts. This illustrates the projector’s connection with the hydraulic world later evoked in *YBD*. Since he also produced a scheme to ascertain the longitude, he was of a piece with the individuals satirized in the pamphlet.

Faced with these reverses, the directors of the Company turned to its core business for a new source of income. They decided to pipe water from the Thames to the expanding and ultra-fashionable area north of the Oxford Road close to Marylebone. They had an obvious model in the success of the New River Company, which for more than a century had brought water by canals from Hertfordshire to a distribution point in Islington. At the same time, another ambitious plan was launched to bring water from the River Colne to ‘some rising Grounds beyond Mary le Bonne’, as described by Daniel Defoe in 1725:
This Water was proposed to be brought from the little Coln or Cole near St. Albans, and the River, called Two Waters, near Rickmansworth, and... I must acknowledge it was a very Practical Undertaking, and merited Encouragement; but it was opposed in Parliament, and dropped for the present: This Design was particularly calculated for supplying those prodigious Additions of Buildings, which I have already describ’d at the West End of the Town. ¹⁰

The adventurers had come up with their scheme to remedy ‘the great Want of Water in the Western Parts of the City of Westminster, and London, and Parts adjacent’. It also involved making the Colne navigable higher up its course. One such scheme had been proposed in 1721, when Desaguliers gave evidence in parliament to the effect that it would be possible to bring water from the Colne to a reservoir in Marylebone Fields employing an engine such as the New River Company currently used. Supporting the scheme was one George Osmond.¹¹ However, the proposal stalled. In January 1724 the new proposal by the adventurers was considered by the Commons. Desaguliers, a principal witness, seems initially to have been behind the plans. He went to Uxbridge on negotiations with owners of mills along the Colne whose business might be affected.¹² Some objected on the grounds that the level of the river would be lowered. The matter was referred to committee, but shelved.

A year later, in March 1725, the committee chairman reported in favour of the proposals, which included a channel from the river near Uxbridge to ‘Oxford Square’ (later Cavendish Square). The main evidence this time was given by Osmond. Other witnesses testified that there would be no injury to the Thames or its users: the most prominent of these was John Perry, a hydraulic engineer famous for his work in Russia on behalf of Peter the Great and for his success in repairing the Dagenham Breach downstream from London. Despite the evidence assembled, the House overturned the recommendation of the committee to go ahead with an act permitting the venture.¹³ Vested City interests may have felt that the new canal would affect the barge traffic on the river: other members perhaps saw it as a rival to the New River Company, with whom they had business ties. But the opposition in Parliament can be linked to the leading shareholder in the York Buildings Company, the ‘princely’ Duke of Chandos. Desaguliers abandoned any connection with the Colne scheme once he was recruited by Chandos for the alternative project.

The key phrase in Defoe’s account relates to the ‘prodigious Additions of Buildings’ in the West End, most relevantly the Cavendish estate that had been acquired by the Harley family as a result of the marriage of Lord Harley (later second Earl of Oxford) to the heiress of the Duke of Newcastle. The area that mattered lay around Cavendish Square, where building work began in 1718. Here the main developer was James Brydges FRS, Duke of Chandos. When the Company turned its attention to an alternative scheme of pumping their water supply from York Buildings to Marylebone, the new reservoir was sited about a hundred yards north of the Square, off the line of what is now Portland Place. By July 1725, the Duke tired of delays in the project and offered to pay for the basin to be built by way of a loan to the Company.¹⁴ The construction of the reservoir was entrusted to Desaguliers, who was serving as domestic chaplain to the Duke and had carried out engineering undertakings for his patron, among them a steam-fired pump to raise water at a town-house in St James’s Square. Chandos was one of the principal shareholders in the Company, with a strong voice in its affairs, and he held a long lease from Lord Harley on the land where the basin would be erected.
In early 1725 the new project approached realization when a Newcomen engine was built to lift Thames water into the York Buildings system. Desaguliers had faced problems in its construction and his fee was delayed, but the engine was ready for trial in April 1726. The wooden 70 feet octagonal tower, surmounted by a ball, had been built for the Savery engine that the Company had previously used without success. It housed a large beam, which generated enough power to raise 3 tons of water from the river per minute. The contrivance had to be powerful enough to send the water to the reservoir about 60 feet above the river. It worked successfully until 1731, when it was abandoned ‘largely because the cost of the coal it consumed was greater than the income from the sale of water from the reservoir, especially when cheap fuel supplies were no longer available from the Company mines in Scotland’. The tower survived until the Embankment was built in the 1860s. As for the engine, this consumed two chaldrons of coal (about 105 hundredweight) in 24 hours, and the cost of fuel was so great that when the operation reverted to horse power this cheaper option still incurred an annual outlay of £600. Whatever its commercial success, the engine attracted scientific interest. In November 1727 Desaguliers demonstrated a working model to the Royal Society, whose fellowship he had joined in 1714 at the request of Newton.

But what of the reception that the new engine received involving criticisms of the noise, the smoke and the disturbance it caused near York Buildings? In fact, YBD follows up on some hostile reaction to the monster that had appeared. Even before it started to operate, the Company had been the target of jibes as a quintessential Bubble operation. There was even a set of playing cards with scathing verses:

You that are blest with wealth by your Creator,  
And want to drown your money in Thames water,  
Buy but York Buildings and the cistern there  
Will sink more pence than any fool can spare.

With the arrival of clanking new machinery, the stage was set for a fresh satire from an informed source. However, YBD is directed not against the Company scheme, but against the protests of its rivals.

PUBLICATION

The first edition of YBD was advertised by James Roberts on 15 December 1725; the entire text, apart from a list of individuals named near the end, was reprinted in Read’s Weekly Journal on the following Saturday. Roberts announced that the second edition was ‘just published’ on 12 January 1726. Most of the original text of 11 pages is left unchanged. An added postscript brings the page count to 16. The full title in the revised version reads:

The York-Buildings Dragons; or, a Full and True account of a most Horrid and Barbarous Murder, Intended to be Committed on Monday the 14th of Febr. next (being Valentine’s-Day) on the Bodies, Goods, and Name of the greatest Part of his Majesty’s Liege Subjects, Dwelling and Inhabiting between Temple-Bar in the East, and St James’s in the West; and between Hungerford-Market in the South, and St Mary la Bonne in the North, by a Sett of Evil-minded Persons, who (by the Instigation of Plutus, and not having the Fear of several Lords, Knights, and Gentlemen, before their Eyes) do Assemble Twice A-Week, to carry on their Wicked Purposes, in a Private Room over a Stable, by the Thames Side, in a Remote Corner of the Town.
The second edition, ‘augmented by almost half’, is said to contain ‘several more wonderful Discoveries’, and to conclude with ‘Orlando Furioso’s Speech, and Prudentio’s Answer’. Then comes a ‘Greek’ motto and the imprint, with the price listed at 6d. The epigraph is a transliteration into Greek type of a passage from Paradise Lost, when the fallen angels make their way through the formless void of Chaos: ‘Abominable, inutterable, and worse / Than fables yet have feigned or fear conceived, / Gorgons, and Hydras, and Chimeras dire’ (2: 626–28). This is one of the first clues as to the mode in which the pamphlet will operate: a playful use of learned wit.

At this point the question of authorship surfaces. Like Stewart, Carpenter expresses some hesitancy about the standard attribution of YBD to Desaguliers, made ‘probably because his name was at some time handwritten on the copy of the second edition held by the Bodleian Library in Oxford’. Carpenter notes: ‘As the pamphlet clearly vilifies the scheme to lift water from the Thames by steam power, and as Desaguliers was committed to the Duke of Chandos to work with him on the project, it would surely have been foolhardy of him to risk offending his patron in this way’. The Bodleian inscription, on the title page, does look to be in an eighteenth-century hand; and Carpenter suggests that Chandos had some suspicions, ‘perhaps because he knew that Desaguliers was annoyed about his fee for the York Buildings reservoir being withheld’. Stewart and Carpenter both quote Chandos’s letter to his agent, Samuel Horsey, in January 1726: ‘There has been published a very stupid Performance called the York Buildings Dragons; they father it upon the Doctor, but I hope without Reason for surely he could never be the Author of such a Piece unless it was whilst the Gout was in his Head.’ (Samuel Horsey became governor of the York Buildings Company in 1726, clearly put in by Chandos.) Carpenter notes that Desaguliers ‘was indeed suffering from gout at this time but the flamboyant prose seems unlike his other writings’. We should note that ‘gout in his head’ meant an attack of the illness on the brain rather than the inflammation of extremities. The ailment from which Desaguliers suffered began, conventionally, in his big toe, and affected his limbs chiefly.

While Desaguliers was sometimes referred to as ‘the doctor’ (having been awarded a DCL by Oxford University in 1719), the honorific was more regularly applied to the Duke’s closest friend in the medical profession, John Arbuthnot (who had been physician to the Queen and to the Royal Hospital at Chelsea until the accession of George I). Equally we know that ‘the Dr’ was suffering from gout in March 1728, as Arbuthnot’s friend, John Gay, informed Swift—not surprisingly, since he was notoriously reluctant to curtail his eating and drinking. Chandos was acute enough to recognize that the work was satiric, and that the ‘flamboyant’ prose bore no relation to the kind of books that his chaplain wrote. As for YBD having been ‘fathered’ on a certain ‘Doctor’, this fits what Pope told Gay in 1722 about Arbuthnot’s habit of slipping his pseudonymous writings into the world, to be misattributed to his friends: ‘Dr. Arbuthnot is a strange creature; he goes out of town, and leaves his Bastards at other folks doors.’

Carpenter supplies a paraphrase of the pamphlet’s argument:

The Dragons (or steam engines) were predicted to cause Londoners to suffer terrible noise ‘that will be heard as far as Calais’. When the Dragons drank, the Thames would have so much water drawn from it that barges would not be able to float. The dirt and exhaust would so contaminate the atmosphere that the local populace would be poisoned, if not killed by an explosion, and the cities of London and Westminster would not be able to see one another for smoke. There would be a shortage of coal as the Dragons would have a prodigious appetite for fuel. The whole calamity was initially set to happen on 20 December 1725, but delays in getting the Newcomen engine working meant there was a second edition.
Carpenter moves on to the members of the supposed club, identifying one of them as George Gordon, who had interested himself in the quest for the longitude. Finally comes ‘an old Magician among the Conspirators, who was the first to make Dragons tame’, which Carpenter sees as a ‘likely allusion to Desaguliers’.22 The others on the list are not mentioned here, but, as we saw, several have been identified by Stewart.

Stewart had not been able to reach a firm conclusion on the authorship or motivation of the pamphlet. Equally Carpenter offers only a tentative conclusion:

The authorship and true purpose of the very witty York Buildings Dragons pamphlet remains an enigma; it could have been written on behalf of the York Buildings Company’s great rival, the New River Company, or even for the London Bridge Waterworks, and would have been a serious attack, or it could merely have been a sophisticated joke. It was certainly penned by someone well read and with some knowledge of the law, as well as familiarity with the proposed Newcomen engine and its working.23

No further evidence is provided to substantiate a connection with the New River Company or the London Bridge Waterworks. It can hardly be a ‘serious attack’, since its manner is ludic, involving wild fantasy and shimmering wordplay. Everything points to something much closer to ‘a sophisticated joke’. Nothing in the text would constitute a genuine indictment of the Company’s motives. The author is well read in the law and shows a grasp of a wide range of subjects in science and the humanities, including native folklore and mythology. While he must have known about the events surrounding the Newcomen engine, no advanced technical background was required.

Most comments on the pamphlet to date suggest a more portentous work than YBD actually is. They hardly indicate its uproarious and sometimes Rabelaisian humour, or its irreverent attitude towards orthodox religion and occult lore. None of these qualities is readily found in the writings of Desaguliers. Comedy was never his forte; and he unfailingly observed the decencies in his public pronouncements. But we have no reason to think that Desaguliers had any hand in the proceedings, and every reason to locate the prime suspect in another quarter.24

THE SATIRIC CONTENT

Red flags are hoisted in the opening words of the title. Where else have we seen a satiric pamphlet that offers to provide something along the lines of ‘A Full and True account of a most Horrid and Barbarous Murder’? Repeatedly, in the parerga of the Scriblerian group. These were the works in prose and verse, usually brief and invariably anonymous, put out by members of the club celebrating the imaginary pedant Martinus Scriblerus, formed in 1713 by Jonathan Swift, Alexander Pope, John Gay, Thomas Parnell and John Arbuthnot, with the Earl of Oxford, then Lord Treasurer, as an honorary associate. The club quickly ceased to hold regular meetings, but the surviving group continued to produce uproarious parodies and hoaxes, often directed against medical or scientific figures, including the geologist Dr John Woodward FRS and the heretical mathematician William Whiston. By far the most active in these endeavours were Arbuthnot and Pope.

An immediate parallel to the form of words used in the title of YBD occurs in works by the Scriblerians. These include Swift’s A Full and True Account of the Battel, Fought last
Friday, between the Antient and the Modern Books in St. James’s Library (1704), Pope’s A Full and True Account of a Horrid and Barbarous Revenge by Poison (1716) and A True and Faithful Narrative of What Pass’d in London during the General Consternation of all Ranks and Degrees of Mankind, perhaps written by Gay and published in the group’s Miscellanies (1732). This last item concerns the prophecy of a disturbance in London, similar to that prompted by the eruption of the dragons in YBD; so does Annus Mirabilis or, The Wonderful Effects of the Approaching Conjunction of the Planets Jupiter, Mars, and Saturn (1722) attributed to either or both of Arbuthnot and Pope. Carnage in the city is also the theme of A Wonderful Prophecy, taken from the Mouth of the Spirit of a Person, who was Barbarously Slain by the Mohocks, probably by Gay. These narratives, set in the capital, often use topographic markers, as with the mention in YBD of residents ‘Inhabiting between Temple-Bar in the East, and St. James’s in the West’. They are explicit about when the prophecy will be fulfilled: thus, Annus Mirabilis specifies 29 December 1722. Such precision goes back to Swift’s Bickerstaff papers, where the supposed death of the astrologer John Partridge is announced with absurd exactitude: ‘he will infallibly dye upon the 29th of March next, about Eleven at night, of a raging Feaver.’

The full title also makes sport with a phrase commonly found in accounts of crime, that is the expression ‘not having the fear of God before your eyes’, which was used in all criminal indictments. It makes up a light-hearted device to present the new scheme, as seen by its opponents, as equivalent to murder. The adroit manner with which the parody is managed here suggests that an experienced comic writer is at work. Another touch that helps to give the game away is the reference to St Valentine’s day. The timing of the event is mentioned later in the text, when the ‘old Magician’ (Desaguliers) orders the dragons to be ‘loos’d at once on Valentine’s Day next; because then, as all other Birds chuse their Mates, so they will be paired like loving Pidgeons’ (13). This date was listed by the almanac-makers among the ‘lucky days’, those propitious for starting a new enterprise. However, there is a hidden astrological joke, since 14 February falls into the period when the sun is in the sign of Aquarius, the water-carrier. It is worth noting that YBD appeared anonymously, like most Scriblerian works, whereas Desaguliers regularly signed his productions.

The text begins by claiming that the ‘Conspirators’ (the caricature version of the Company) have bought two dragons ‘from the Deserts of Lybia’ (3). This might recall an allusion to ‘all the Monsters of Lybia’, which occurs in the first act of the Scriblerians’ farce, Three Hours after Marriage (1717). It brings to mind ‘the Libyan Lion, more fierce than in his native Desert’ in Chapter XIV of the Memoirs of Martinus Scriblerus (a joint production of Pope and Arbuthnot, first published in 1741). The tail of one dragon is said to be one and a half miles long, a conservative estimate of the distance from York Buildings to the Marylebone basin.

The second paragraph is built around elaborate pseudo-physiological terms, reminiscent of passages in the Memoirs, most obviously Chapter XII. There is a dig at the ‘Virtuoso’s of Great-Britain’ (4), along lines familiar from many Scriblerian jokes at the expense of collectors such as Dr John Woodward. The astrologically informed writer remarks that practitioners of this science ‘are perfectly well acquainted with Dragons Heads and Dragons Tails’ —astrological signs for these, representing the north and south stars of the constellation Draco, appeared every year in the key to Old Moore’s almanac, Vox Stellarum, or John Wing’s Olympia Domata. Elsewhere Scriblerus had proved an adept in this field, by plotting a conjunction of the planets in Annus Mirabilis.
The author makes particular mention of ‘Villette’s great Burning-Glass, the Hugenian Telescope, and the Waxwork Anatomies’. The first reference is to *A Description of the Great Burning-glass made by Mr. Villette and his Two Sons, born at Lyons. With some Remarks upon the Surprising and Wonderful Effects thereof* (1719). Between May 1718 and July 1719, François Villette, engineer to the Elector of Cologne, had displayed this device at the Privy Garden at Whitehall in the form of a concave mirror to produce high temperatures by focusing sunlight. Also in 1718, Desaguliers had given demonstrations at the Royal Society along with Dr John Harris FRS, best known for his *Lexicon Technicum* (1704). This technique had already taken the fancy of Arbuthnot, when he brought out a mock protest by the citizens whose occupations would be damaged by its use. The second reference concerns a telescope using a lens with a focal length of 123 feet invented by the celebrated Dutch physicist, Christiaan Huygens: in the same year James Pound FRS reported on astronomical observations he had made with an instrument presented to the Society by ‘M. Hugon’. The latter almost certainly interested Desaguliers, because he gave the Society accounts of his own observations, sometimes made with his friend Stephen Gray. But, equally, anything with a mathematical basis attracted Dr Arbuthnot, who was involved in the efforts of the Society to dampen down the feud between John Flamsteed and other Fellows, notably Newton and Halley, as well as to hasten the publication of Flamsteed’s star catalogue. Anatomical models in coloured wax had been introduced in France; and the surgeon Guillaume Desnoues (*ca* 1650–1735) brought them to London as early as May 1717 for exhibition and sale, displaying them off the Strand with complete bodies of adults and children on show. A medical man such as Arbuthnot likely kept his eye on such exhibitions.

A final reference in this paragraph draws out a joke concerning the Dragon of Wantley, who was ‘kill’d by More of More-Hall, before he cou’d come Southward’ (4). This indicates the writer’s familiarity with English folklore, here the legend of a dragon-slaying knight in Yorkshire which enjoyed great currency as a ballad and in dramatic form. It is characteristic of the Scriblerians to bring in material from folktales and popular literature. Dragons frequently enter such traditional sources, and there is a reference to Bel and the dragon, from the biblical Apocrypha, in *Three Hours after Marriage*, a work in which Arbuthnot probably had a hand. Desaguliers, though, showed not the faintest interest in folktales. This passage concludes with a reference to the Glandula Pinealis, where Descartes located the seat of the soul: this organ had been the favourite subject of experiments by Martinus Scriblerus, as reported in Chapter XII of the *Memoirs*.

At this point the author begins a detailed prophecy of events to unfold on 14 February 1726, just weeks after the appearance of the first edition. He pins the start of the ‘catastrophe’ to one second in the morning of that day. When the monster claps his wings, the sound will be so penetrating that ‘All those who have musical Ears, within the Bills of Mortality, will be struck deaf’ (5)—Arbuthnot was just such an individual, unlike Desaguliers. Among other effects, the tide ‘will not be able to rise high enough to fill the Bason of a Sett of good natur’d Gentlemen, who have been at immense Pains to serve the new Buildings with Water, minding their own Business, and never medling or finding the least Fault with, other Peoples Projects’ (6). Of course, the purpose of setting up the engine was to pump water from the Thames to the ‘new Buildings’ in the Marylebone area. The pamphlet clearly designates the principal ‘Conjuror’ involved in the scheme as Desaguliers, who was sometimes viewed in this light by the audience at his experiments. In this sentence, the author seeks to absolve from blame the ‘good natur’d Gentlemen’
headed by Chandos. The Duke’s two current undertakings, at York Buildings and in Cavendish Square, are thus cunningly separated from one another.

The following paragraph describes the ‘next Calamity’, caused by baneful effects of the coal used to fuel the engine. It argues that the smoke produced will spread over the city, causing damage through its ‘ponderous’, ‘elastick’ and ‘fuliginous’ qualities. Plants will be so badly affected that it would take ‘a very nice Botanist’ to identify a leaf, whether of the ‘subfusc or down right piceous Colour’ (6). These are examples of the ‘philosophic words’ that had taken over the language of science and were often parodied by satirists—long stretches of the Memoirs of Scriblerus consist of little else. Arbuthnot had sported in 1716 with a different threat, that of the burning-glass, which would allegedly monopolize the supply of sunbeams and ruin the business of colliers, blacksmiths and others, destroying the coastal trade by which coal was brought to London (as the York Buildings project required). This pamphlet obliquely satirizes William Whiston’s apocalyptic view that a total solar eclipse of 22 April 1715 and a comet that appeared two months later presaged the end of the world. Whiston had been a favourite target of the group, and its members had not yet forgotten him.32

A worse effect of the smoke will be that the sulphurous particles it contains will produce haemorrhage in the lungs, which can be stopped only by ‘the famous Styptick of a publick-spirited Physician, who is always partial to others, and impartial to himself’ (7). The individual was Dr Robert Eaton, famous for his balsamic styptic, to which the king had granted a patent in 1723. Eaton sold the drug from his house in Coleman Street, within the City, and a team of agents dispensed it throughout the country.33 An Account of Dr Eaton’s Styptick Balsam soon appeared with a dedication by the doctor to Sir Hans Sloane and other Fellows of the Royal College of Physicians. A second edition followed in 1726, with an additional prefatory letter addressed to Isaac Newton and the Fellows of the Royal Society dated 25 March in that year, two months after YBD came out in its revised form.34 Someone had seemingly got wind of the new boost that Eaton was intending to launch in support of his product. If we think of likely candidates, the attributes required would fit Desaguliers in part, by reason of his connection with Newton and the Royal Society. A more complete match would be a medical man who, in addition to having these connections, was a long-time Fellow of the College of Physicians, and a friend of Sloane—someone like John Arbuthnot, who gave the Harveian lecture to the College on 18 October 1727. Eaton had a chequered history. In 1717 he had been created MD at Cambridge by royal mandate, but failed in his examination for the Royal College in 1718. A final consideration is that his brand of huckster advertising resembles that of other quacks and pill-pushers who figure in the work of the Scriblerians, beginning with Pope’s Narrative of Dr Robert Norris (1713).

A further clue emerges in the next paragraph. The dragon carries a bomb on his back, which he is able to activate by wrapping himself around it, causing an explosion which will kill men, women and children. He is ‘a Serpent of the Ossifragous Kind (such as that whose Skin Dr M—gave to the Royal Society)’ (7). This inescapably singles out a colleague and friend of Arbuthnot, Richard Mead, who alone rivalled Sloane in the quality of his collections. The Scriblerians had sided with him in opposition to Dr Woodward—these disputes led to an ugly street brawl between the two physicians. Moreover, the doctor had made his name with a treatise on snake poisons in 1702, which gained him election to the Royal Society; while his personal coat of arms bore an infant (presumably Hercules) strangling a serpent, with the motto ‘Labor est angues superare’.
Many others knew of Mead, but not so many of his donations to the Society. Such issues, holding little obvious interest to Desaguliers, lay central to the medical and antiquarian concerns of a man like Arbuthnot.

A joking display of knowledge in anatomy and physiology comes in the next section. The dragon ejects poison, drawing effluvia out of the air through its proboscis. The description skirts on the border of obscenity:

And therefore to make up the Desolation of this poor City, he will, from the Thames, in great Abundance, draw in all the *Fatido-cabbageous*, *Dead-doggitious*, *Dead-catitious*, *Fish-street-hillious*, *Drury-lanious*, *Issue-plasterious*, *Excrementitious*, and all *Common-shoreitious* Particles therein contain’d from time to time; and having there with fill’d his Stomach, this *Stygious* Compound will pass the Pylorus, and being carried along the *Viscera* by the *peristaltick* Motion, and so moving on to the Rectum, will issue out at the *Anus* (which in this Animal is in the last Joint of the Tail) with great Stench, in vast Quantities, into a large Receptacle, prepar’d by the aforesaid Conjurer, for receiving and containing this hellish Liquor. Now... it is evident to all *Chymists* and *Naturalists*, and several other ingenious Gentlemen besides, that there must be an intestine Motion... and this intestine Motion will cause a Fermentation, which Fermentation will cast out *undequaque* such pestiferous Steams and Vapours, as will depopulate all the whole Neighbourhood, in such a manner that Grass will grow in *QUEEN ANNE-street*, *CHANDOS-street*, *MORTIMER-street*, and all the adjacent Streets, till the *Genius of Architecture* comes to the Relief of the desolate Place. (8)

The dragon has an added sting in its tail: if it should happen to suffer a wound there, ‘from it will issue, with Impetuosity, Rivers of this abominable Liquor, which will inundate, and render impassable, the Streets, [and] drown all that comes within its *Vortex*’ (9). The last word carries its own mock-Cartesian ring.

This is surely to give the whole game away. It is hard to see how anyone could have regarded this as part of a serious tract, or imagined that pure commercial rivalry lay behind it. We might detect some echoes of the drowned puppies and dead cats carried down to the river in Swift’s *A Description of a City Shower* (1710), later copied by Pope in the *Dunciad* ('the large tribute of dead dogs to Thames'). We recall the unpleasant alimentary effects of poison on Curll in Pope’s pamphlets of 1716, and the childish glee with which dirt is thrown around in the *Dunciad*. The squalid associations of Drury Lane in eighteenth-century writing, chiefly in connection with prostitutes, are well known. At the close of the passage comes a clear recollection of Pope’s *Rape of the Lock* (1714): ‘Sooner shall Grass in *Hide-Park Circus* grow’. The streets listed are those at the centre of the development of the Harley estate, now incorporating the land taken over by Chandos, but the sentence also executes a curious *hommage* to heroes of the Scriblerus set: the Queen (whom Arbuthnot had served as royal physician), the Duke and the Harleys (who carried Mortimer as a second title). This passage displays the qualities for which the group was renowned: medical learning, verbal invention, familiarity with the city and its river, delight in bodily waste and a bold unconcern for propriety. None of these attributes remotely matched those of Desaguliers.

To ‘conclude [his] dismal Story’, the author declares that the conspirators have set up a ‘new Kind of Popery’, and even devised a ceremony ‘much like Transubstantiation’, as they mix Ceres with Neptune to contrive ‘a consigillated Wafer, which turns Paper into Money’ (9). The blasphemous comparison recalls a passage that Pope would add to the *Dunciad* (4: 459–462). After this the writer promises that the evil-doers will not be
able to hide behind the Toleration Act, since that ‘allows of no Image-Worship within Ten Miles of London, except it be in a Foreign Amb[assado]r’s Chapell’ (9). In reality, the Toleration Act of 1689 had no such provision. The writer is toying with the notorious Ten Mile Act (1688) banning Catholics from the heart of London, which had led to the departure of Pope’s own family from the City when he was a small boy.

THE TARGETS OF THE SATIRE

At this point comes a list of those supposedly responsible for the foregoing material.35 They are said to meet as a club weekly at ‘B-m’s’ coffee-house, a deliberate misprint for Button’s in Russell Street—now past its glory days, but still in business. It had been the location of public lectures on the sciences, including some by Whiston that Pope had attended in 1713–14. Moreover, the coffee-house had an intimate connection with the Whig circle of Joseph Addison, who had helped to promote Whiston’s new ‘Scheme of the Solar System’, claiming that this was ‘founded on Sir Isaac Newton’s wonderful Discoveries’.36 This site had been consecrated to the provision of public instruction in Newtonian natural philosophy by men like Whiston and Francis Hauksbee the younger. Then, in 1724, a year before YBD, a ‘great’ eclipse of the sun was trailed in the press. One pamphlet by W. Wilson, ‘Student in the Mathematicks’, describing the phenomenon for laypeople, was called Annu Mirabilis: as we have seen, two years earlier Arbuthnot and Pope had written under the same title an account of a supposed universal sex-change caused by a conjunction of the stars. Not to be outdone by W. Wilson, Whiston composed his own guide to the event and set up an orrery to demonstrate its processes. He also returned to give lectures on the topic at Button’s.37

It is on this spot that the conspirators gather to ‘settle the Mechanical, Physical, and Moral World’ (10).

The first name is that of the chairman of the club, ‘S. Cathedral, A.M. of O. College, Reviver of the ancient Sternholdian Poetry’. A footnote reads: ‘See his Epistle to the University, on the Death of the Bishop of Durham, Printed at Oxford in the Year 1721’. He can be identified as Samuel Catherall (ca 1694–1764), a Fellow of Oriel in 1715, and author of An Essay on the Conflagration in Blank Verse (1720). The poem addressed to the university that the pamphleteer mentions is indeed lame in choice of words, rhyme and metre. Pope had a particular scorn for the Elizabethan poet Thomas Sternhold, evinced in his burlesque of Sternhold’s metrical version of the first Psalm. What connection Catherall had with the others on the list has not emerged. In 1731 a commission of lunacy was taken out against him.

The second chairman is ‘The Reviver of ancient Elocution’, as the tub-thumping cleric John ‘Orator’ Henley (1692–1756) called himself.38 His Oratory was not set up until July 1726, but he had already begun his campaign to revive the primitive church. In April of that year the press announced that ‘The Rev. Mr Henley, Restorer of the Ancient Elocution in the Pulpit, having resigned his Preferment in the Church of England, on Tuesday last took the Oaths required by Law to qualify himself for a Baptist Preacher’. His relations with Pope, Swift and others have been thoroughly explored.39 No obvious link to the remainder of the mathematical group has been established, but we can observe here Henley’s odd connection with Whiston. When the preacher began his lectures at the Oratory, he sought advice from the deprived Cambridge professor and the framework for
his breakaway church was derived from Whiston’s writings in favour of a return to ‘primitive’ religion. However, Whiston soon became a bitter opponent of Henley’s project, and in October 1726 (just months after YBD appeared) he burst into the Oratory to deliver a stinging letter of rebuke. A public fracas followed, in which Henley accused his opponent of grave offences, including forgery, plagiarism and slander.40

There is another possible reason for Henley’s inclusion. He claimed to have written a work which ‘cut up Dr. Greene in defense of Sir Isaac Newton’, supposedly published in 1711. Henley’s biographer was unable to find any trace of this book ‘among the extensive Newtoniana of the period’.41 However, it can only be A Taste of Philosophical Fanaticism: in some Speculations upon the Four First Chapters of Mr Green’s Principles of Natural Philosophy. By a Gentleman of the University of Gratz in Germany, an Humble Servant to the New Theory of Reflexion and Refraction, and a Well-Willer to the Spectacle-Manufacture, upon the Newtonic System, issued by John Morphew in December 1712. This is another work of satire. Its target is a work by Robert Greene DD (ca 1678–1730), a Fellow of Clare Hall, Cambridge, and vigorous Christian apologist. His book entitled The Principles of Natural Philosophy, in which is shewn the Insufficiency of the Present Systems, to give us any Just Account of that Science (1712), is an early attempt to dislodge the ideas of Newton and Locke as they promoted materialism and irreligion. A Taste would have been written in the year that Henley graduated from St John’s College, and does not greatly resemble his later writings. It contains references to Swift, showing obvious influence from A Tale of a Tub and its pendant The Mechanical Operation of the Spirit (1704). The author puts down ‘the intolerable Scrubbado of Writing, which possesses the Youth of this Nation’, attributing this in faux-medical terms to ‘over-much Volatility in Animal Spirits, in those Lobes of the Cerebellum which surround the Glandula Pinealis’.42 The work contains an almost Gulliverian space voyage, along with mention of ‘all’ Whiston’s productions, and recent works in philosophy, theology and literature.

As this indicates, the Taste possesses little serious scientific content, even though it offers to refute Greene’s philosophical and theological premises. It would not have held much interest for a man like Desaguliers, and reads like the sort of thing Arbuthnot would have written. Most intriguingly, there is sneering mention of ‘my learned Friend Mr Green, of Cambridge’ and ‘the Principle of his new Philosophy’ in an earlier satire, The Longitudes Examin’d by ‘Jeremy Thacker’ (1712), a work similar in tone to the Taste which has been attributed to Arbuthnot. Since Henley only began to make his claim to authorship in 1736, the year after the doctor’s death, the possibility arises that he was pilfering the work of the gentleman of Graz.

One of the four chief mathematicians is ‘R—BUMP-D, Esq’.43 This is Robert Bumstead (d. ca 1739), originally a maker of clocks and watches, who late in 1724 was granted a patent by the king for ‘an Engine or Machine for Raising Water to supply Cities and Towns’. The machine was advertised as available for purchase just as YBD made its appearance (Daily Post, 8 December 1725). However, it looks as if others had stolen a march on him, and Bumstead issued two petitions to parliament on behalf of himself and others. One asked for a clause in his favour to be added to the act that would allow water to be brought from the Colne to the West End.44 The other asked for a clause to be inserted specifying the use of his engine in the act; but, as we have seen, this bill was rejected. He did not give up. In 1727, following floods, a syndicate of landowners and gentry led by the Duke of Devonshire got through a measure in parliament to drain
the Bedford Levels around the lower Ouse, and Bumstead’s engine was chosen to carry through the work. This project proved no more successful.

The next of the engineers is a better known figure, ‘B—LANG—Y, Master of the Focus’. Batty Langley (1696–1751) had yet to attain fame for his gardening treatises, his directories of building and his survey of the Westminster Bridge. However, his emphasis on the need to provide ‘focus’ points in building and gardening may already have become familiar to insiders such as Pope, since Langley was living close by the poet in Twickenham and would publish his Builder’s Chest-Book (1727) as ‘B. Langley of Twickenham’. This describes a room in Orleans House, further down the riverside, and owned by James Johnston, who in 1718 added an octagonal pavilion designed by James Gibbs. The work was carried out just a year before Gibbs remodelled Pope’s villa and it was very little later that Gibbs began to work on the Cavendish-Harley estate (see below).

The following name is ‘MATT— PAL—R, the greatest Engineer in the World’. Palmer’s fame has not survived this jeering allusion. However, a portion of a patent roll from 1724 contains an invention for Matthew Palmer, specifically ‘a machine to raise water any height out of mines, rivers, pits, pools or concavities’. The contemporary importance of such hydraulic engines is indicated by a list of patents granted in 1724. All six items for this year, which include the invention by Billingsley but exclude Palmer’s, relate to pumping devices of this kind. As Stewart puts it, Billingsley’s ventures ‘crossed the boundary between the entrepreneur and the mechanic. They are significant because they exhibit the euphoria of improvement that gripped the early eighteenth century’. The same comment applies to the doings of other members of the ‘club’ in YBD, but of course the ‘euphoria’ is held up for ridicule and not admiration.

More information is available on the last of the engineers, ‘FR—CONR— de HARZ—D, who first stitch’d up the Perpetuum Mobile in England’. Johann Conrad Franz von Hatzfeld (1685–1751) arrived in London around 1720 and took up the search for perpetual motion, a cause that the Royal Society had come to regard as chimerical. In the 1740s he managed to interest Christian Wolff in a renewed attempt to counter the physics, cosmology and theology associated with Newton. Now taken seriously as a thinker within the Radical Enlightenment, he was originally known for a remarkable tract, The Case of the Learned Represented According to the Merit of the Ill Progress hitherto made in Arts and Sciences, Chiefly in Philosophy, of which the Author gives an Entire New System (1724). Dedicated to the king, the work is made up of two letters to the Royal Society, and constitutes a full-blown assault on Newtonianism. The opening section is devoted to ‘shewing the Possibility of making a Perpetual Motion’. Von Hatzfeld had been impressed by the ‘gravity wheel’ devised at Leipzig by Johann Ernst Elias Bessler around 1713. Dr Desaguliers contributed an article on this machine to the Philosophical Transactions in 1721, entitled ‘Remarks on some Attempts made towards a Perpetual Motion’. In this he undertook to show experimentally that the principle on which Bessler had founded his invention was false. This reference is the one in YBD which touches most directly on Desaguliers’ specialized concerns. However, the publication of this article on Bessler would have drawn the attention of Royal Society Fellows to the issues, even before von Hatzfeld advertised his public demonstrations in Bow Street in 1721, or his tract descended on readers in the summer of 1724. What made von Hatzfeld apt to the purpose in YBD was his claim that the method he had developed would be ‘applicable to Clock Work, Water Works, Mills, and other Machines’ (Daily Post, 29 May 1725; for a public display of his wheel, see Daily Courant, 14 July 1725).
Another member of the club is ‘G—GORD–N, Longitude-Finder’, named as first mathematician. He is the only individual known to have close links with Desaguliers, to whom he describes himself as ‘assistant’, and with whom he may have lived at one time. George Gordon was ‘a minor author of books on algebra, astronomy, geography and dialing’.50 Like others in the club, he moved on to hydraulic projects, this time for the purposes of landscape design:

They write from Wentworth House ... in Yorkshire, that on the 2d Instant there was finish’d an Engine for raising Water to supply that fine Seat, by the Direction of Mr George Gordon, which is esteemed by all that have seen it to be the best Engine of the kind in England. The Water is raised by it 1600 Yards in Length, and 80 Yards perpendicular.51

The occasion for the reference in YBD is Gordon’s short work, A Compleat Discovery of a Method of Observing the Longitude at Sea (1724). Swift and Arbuthnot had repeatedly made fun of such efforts, notably the bomb ships of William Whiston.52 As seen, there are grounds for believing that Arbuthnot was behind a sharp satire, The Longitudes Examin’d by ‘Jeremy Thacker’ (1714). The essence of Gordon’s scheme, put to the longitude commissioners in December 1719, was to construct a telescope capable of observing at sea the eclipses of the satellites of Jupiter. From Arbuthnot’s correspondence with Swift we have some idea of the way that the doctor looked on such plans.

Gordon is followed by ‘G—OSM—D, Plumber, great Pencil-Bearer’, whose role is that of ‘Describer of the Velocities’. George Osmond (d. ca 1735) was indeed a member of the Plumbers’ Company, and served as its master in 1732. He worked on lead fittings in at least seven of the Queen Anne churches between 1712 and 1723, beginning at a time when Arbuthnot was among the commissioners and James Gibbs the surveyor. Thus, we find him employed in 1716 at the new church in the Strand, St Mary’s, designed by Gibbs and plotted by Pope as the site where the dunces foregather to hold their sports.53

But Osmond probably earned his place in the satire through his evidence before a committee of the Commons in January 1725, when the House was considering the proposal to build a canal from the River Colne to the West End. Osmond had described how he calculated the level of the intended canal from the Cowley stream, just below Uxbridge, to ‘the Pavement of the Lord Harcourt’s Hall-door, in Oxford-Square’, giving a drop of 10 feet 9 inches over its course. Clearly such a scheme would bring the water to the very doorstep of the aristocratic residents due to take up residence in Cavendish Square, headed by Chandos. The clinching fact is that Osmond’s testimony to parliament centred on the rate of flow of the current. This would make him for the pamphleteer an expert on ‘velocities’. That Newton’s first two laws of motion, expounded in the *Principia*, deal with velocity (‘Lex II: Mutationem motus proportionalem esse vi motrici impressae’), and that the physicist uses the word *velocitas* seven times in his treatise, offers an opportunity for the puns Arbuthnot loved.54

One more clue suggests that the failure of the bill promoted by the ‘adventurers’ had something to do with opposition from the Duke’s quarter. There were two tellers for the nays at the end of this session. One was ‘Mr. Westfaling’.55 This champion for the rights of the public was Herbert Rudhall Westfaling, a ‘cousin’ of Chandos and, like him, a native of Herefordshire; in May 1725 the Duke enlisted Westfaling’s aid in getting a Cumbrian coal-owner and MP, James Lowther, elected FRS in 1736, to support his schemes in the Commons.56 The two men from Hereford had other business ties and the
Duke endeavoured to place his cousin on the board of the York Buildings Company in late 1724 and early 1725. Most significantly, in 1717 James Brydges, then Lord Caernarvon, had procured for Westfaling what had been his own parliamentary seat at Hereford. When the Duke needed this seat for his son in 1727, his cousin obediently stood down. The other teller was John Plumptre, an ‘old friend’ whom Chandos allowed to take over the seat at Bishop’s Castle in the same election. This offers a strong presumption that the Colne scheme was shot down by the York Buildings Company, and a fortiori that the principal targets of YBD were those with some connection to the project.

The last name on the main list is ‘GOLDEN QUILL, Settler of all Ambiguities’. A note enjoins readers to see ‘the Poetry at the End of Ward’s Young Mathematician’s Guide’. A poem by Samuel Cunn, ‘Teacher of the Mathematicks’, at the conclusion of John Ward, The Young Mathematician’s Guide (3rd edn, 1719) does refer to the ‘golden Quill’ of the muses, but this item was dropped in the following edition of 1724. We might wonder why anyone should single out in this context a poem that was almost 20 years old. However, Cunn was still active as writer, teacher and surveyor. Among his works was a revised translation of Newton’s Arithmetica universalis in 1720. He was an able mathematician, well versed in practical surveying, which is no doubt why the Colne River adventurers employed him along with Osmond to take the level of the ‘Stream’ from Cowley to Cavendish Square, and why he ended up in YBD. Moreover, in 1723 Cunn published a revised text of the edition of Euclid by Dr John Keill FRS, a Newtonian and friend of Arbuthnot, seemingly without permission (Keill had died in 1721). Cunn criticized some of Keill’s solutions in trigonometry—this more likely antagonized Arbuthnot than Desaguliers. Keill dedicated his Introduction to the True Astronomy (1721) to Chandos.

After the main series of names, the writer adds: ‘Besides all the great Wind-Engineers, from the Quail-Pipe to the great double Water-Bellows.’ Here, we approach one of Desaguliers’ own specialties, hydraulics. For example, in the Course of Experimental Philosophy, he describes a trial he made of ‘M. Du Puy’s Engine’, a pump to raise water using two bellows, which had been invented by the former Intendant de la Nouvelle France. The passage targets the ‘windy’ exploits of projectors. The satirist’s trope here derives mainly from Swift’s Tale of a Tub (1704), section VIII, which begins ‘The learned Æolists, maintain the Original Cause of all Things to be Wind, from which Principle this whole Universe was at first produced’, and which presents as afflatus the style of pulpit oratory John Henley would practise 20 years later.

The list is signed by ‘Anodyne Necklace’ as secretary to the group. The reference strikes at the purveyors of pills and drugs: this was a widely advertised teething aid. The quack behind it was Paul Chamberlen (1636–1717), who came from a family of obstetricians. An endorsement of his business appeared as A Philosophical Essay upon the Celebrated Anodyne Necklace, Recommended To the World by Dr Chamberlen, for Childdren’s Teeth: Women in Labour: And Distempers of the Head (1717), dedicated with huge effrontery to ‘the Most Illustrious the Royal Society’ (and also to Chamberlen, who was possibly the author). In January 1723 the proprietor of the necklace, perhaps the founder’s son Paul junior, became embroiled with another patentee over stones used to cure gout, and sought to enlist Dr Mead on his side. Everybody was familiar with the anodyne necklace, but it is least probable that members of the medical faculty would be oblivious of Chamberlen’s activities. In any case, the reference in YBD exactly mimics a formula found in his
In the postscript appended to the second edition, Anodyne claims to be the one who discovered the plots of the ‘conspirators’ behind the erection of the dragons, through his skill in ‘Astrology and Physick’ (11). There is more play with medical jargon: ‘his pia and dura mater will never again perform their Functions’, recalling a couplet in the witty poem *Alma* (1718) by Arbuthnot’s friend, Matthew Prior: ‘How could I play the Commentator / On Dura and on Pia Mater’. Anodyne states that ‘Our Longitude-finder ... took it into his Head to make a Reflecting Telescope’, leaked information about the club to the conspirators and had not been seen at the club since then. As a result, the dragon was forewarned and, when he began his motions, ‘he only piss’d into the Receptacle’ (12).

Then comes a long speech by ‘Orlando Furioso’, who urges local residents to stand up against the dragons. Abundant evidence shows that this figure is based on Sir John Colbatch (1666–1729), an apothecary who managed to acquire standing as a Licentiate of the Royal College of Physicians, but was often regarded as not much more than a quack. He has been described by a leading authority as having enjoyed ‘one of the most remarkable London medical careers of the turn of the eighteenth century’. Colbatch was known both for patent nostrums and for his aggressive polemical style in numerous books that set out his heretical views on the causes and treatment of disease. In particular, he became leader of the so-called ‘acidists’ who believed that illness was alkaline and required to be countered by the infusion of acids, a claim that initiated a fiercely fought controversy in the late 1690s. One opponent wrote in withering terms of his ‘immodest Self-applause’.

Three years after *YBD* came out, a press notice stated: ‘Yesterday ... died ... at his House in York-Buildings, Sir John Colbatch, Knt. A learned Physician, and one of his Majesty’s Justices of the Peace for the City and Liberty of Westminster’ (Daily Post, 17 January 1729). This immediately provides clues to the identity of Orlando. He is addressed in the text as ‘Sir Orlando’ (16), befitting one knighted in 1716. Furioso is a magistrate and seeks to show off his legal knowledge (14–16). Most importantly, he has got together ‘all his Neighbours, who live within sight of the Dragon’s Den’ to organize opposition to the ‘noisy Roar’ of the ‘hellish’ machines (13). From 1717 to his death, Colbatch lived at 15 Buckingham Street, just yards from the York Buildings Company site.

Just as betraying is the tone and tenor of Orlando’s speech:

> Believe me, Gentlemen, I can see into Futurity; I know the Nature of all Physical Bodies; I have ground in a Mortar Salt, Sulphur and Mercury, the Chymists three grand Principles. I have seen the four Elements at War, and have pacify’d their Rage. None, like me, is perfectly acquainted with the Nature of Earth, Water, Air, and Fire. (14)

The ‘grand Principles’ refer to the *tria prima* of Paracelsus. This passage recalls several key ideas in Colbatch’s medical theory, for example the importance of sulphur in ‘carrying’ acids, so much so that he claims: ‘The more any Bodies are impregnated with this universal Acid Spirit, and its beloved Sister Sulphur, the more perfect they are.’ One of his most popular treatments was a ‘Tincture of the Sulphur of Venus’. As for the elements, he writes modestly:
Acid and Sulphur I take to be the vital active Principles in Bodies, Alkaly the Principle of Death and Corruption, Water and Earth the two passive Principles. From these five Principles I think I can more easily account for the various Phenomena in natural Bodies, than of the old five of Salt, Sulphur and Mercury, Water and Earth, or from any other Principles yet broach’d in the Worl’. He actually asserts, ‘I take the Life of Man to be a Fire or Flame’.  

A final clue comes in this passage of Orlando’s speech:

> If no Hurt shou’d happen in these Parts, I have a pretty Whirligig, that spins twice a day, about two Miles up the Water, and shall speedily have three more; and I’m credibly inform’d, that as soon as the two Dragons get abroad, they will swallow up my four Whirligigs. (15)

This seemingly refers to the Chelsea Water Works Company, founded in 1723. It was designed to bring Thames water from a tidal creek through Pimlico by means of cuts and ponds to a pumping machine near the site today of Victoria station. The basic system was established by 1726, with the help of two engineers (one of them, James Scanlan, ‘mathematician’, being one of the projectors who had petitioned the Commons for a licence in 1722). They constructed two mills with waterwheels. By 1728 four wheels had started to operate. Colbatch must have known about this because he had an interest in the company. In 1726 he bought the tabernacle that had been used for worship by parishioners while James Gibbs’s new church of St Martin’s in the Fields was under construction, and gave it to the Chelsea Water Works for a storehouse.

This connection with another hydraulic scheme makes Colbatch a likely antagonist of the York Buildings Company. He fits the design of the satire in several ways, and it is not hard to see why a writer such as Arbuthnot would have considered him fair game. He had been knighted by the Hanoverians just when the doctor and his friends were losing their public offices. As a member of the vestry of St Martin’s in the Fields he belonged to a strongly Whiggish body. Much given to self-advertisement, he had promoted his cures with the aid of public experiments on dogs. He had always been held in low esteem by conservative figures in the medical profession: in 1694 the surgeon William Cowper FRS (1666–1709) wrote a critical account for the Royal Society of Colbatch’s much-touted styptic powder. His flirting with alchemy in the passage quoted indicates a taste for the unorthodox which could easily play into the hands of satirists. As a colleague (even if a junior one) in the College of Physicians, he must have come to the attention of Arbuthnot. In relation to the Chelsea Water Works, this was sited in a district the doctor knew well. As physician to Chelsea Hospital, standing close to the line of the watercourse, he had lodgings there until he was ousted when George I arrived. Orlando is given the longest speech in the pamphlet, other than the words of the supposed narrator, ‘Anodyne Necklace’ (a quack), and is named on the title page of the second edition. This may strengthen the case for an author with a close interest in medical matters.

Finally, a short reply is made by Prudentio, an honest tradesman in the neighbourhood, who suggests that Sir Orlando has made out the threat to be greater than it really is. ‘Dragons are not such things as they are describ’d in the Seven Champions of Christendom’—another application to popular native literature, here the Elizabethan collection of tales which recorded the feats of St George and others. Arbuthnot had mentioned it in the second part of John Bull (1712). The speech continues, ‘Was not all the Town entertain’d last Winter with the Dragon in Lincoln’s-Inn-Fields? I took my
Wife and Children several times, who were highly delighted; and we cou’d not perceive that the Dragon ever did any Mischief, or swallow’d up any Body but Doctor Faustus’ (16). Two years later Pope would call up exactly the same occasion in the *Dunciad*, describing scenes on stage where ‘All sudden, Gorgons hiss, and Dragons glare’. Pope’s note reads, ‘Dr Faustus, the subject of a set of Farces which lasted in vogue two or three seasons, in which both Play-houses strove to outdo each other in the years 1726, 27’. The play indicated is *Doctor Faustus: or, The Necromancer*, first performed at Lincoln’s Inn Fields on 23 December 1723.

The evidence assembled here prompts a different reading of the pamphlet from that of Carpenter. It suggests that, despite the title, the York Buildings Company was never the real target of the satire. The ‘good natur’d Gentlemen’ who have constructed the basin are exempted from criticism. There are two dragons, which serves to distance the scheme from the single engine that Desaguliers was building. Ridicule is thrown chiefly at a motley group of individuals, none of whom had any known connection with the York Buildings project. Graham alone is acquitted, after he apparently came over to the side of his mentor, Desaguliers. Three of those on the list, Bumstead, Osmond and Cunn, had established contacts with the alternative plan to build a canal from the Colne to Marylebone, which was quashed in parliament—probably through the influence of Chandos. The pamphlet, then, offers a parody of alarmist objections to the ‘conspiracy’ involved in setting up the York Buildings scheme, a campaign mounted perhaps by the disappointed Colne River adventurers.

**THE CAVENDISH-HARLEY DEVELOPMENT**

At the heart of the new initiative by the Company lay the development of the Cavendish-Harley estate. The land had formerly consisted of waste ground in the unfavoured outskirts of the city. After the property fell into the hands of Lord Harley, ‘what was in effect a new town’ was created. This involved aristocratic partners, among whom the most important was Chandos, who took a lease on the whole of the north side of Oxford, later Cavendish, Square. Part of the east side, with a frontage of 75 feet, was taken in April 1720 by Lord Harcourt, and one on the west by Lord Bingley, while the remainder was let out to speculative builders. However, the slump caused by the South Sea debacle in 1720 slowed progress for many years. The architect, James Gibbs, a close friend of Pope, leased land on which to build houses for speculative purposes, as well as one site for his own home. In the first few days of 1726, between the appearance of the two editions of *YBD*, Pope stayed with Lord Harley (now Earl of Oxford) at his house in Essex, which Gibbs had designed for his noble patron. At this juncture, Pope was in touch with the architect at his workplace on the Harley estate. One message from Gibbs is addressed to Pope at Lord Bathurst’s home—and Bathurst, Arbuthnot’s most intimate aristocratic friend, was among the first to lease a parcel in Cavendish Square.

What of the other lessees? Harcourt had long been an ally of Arbuthnot’s circle since serving as Lord Chancellor under Robert Harley. He had reached an agreement for the house in Cavendish Square in March 1721, but it was not ready for occupancy until April 1725. It was here that Harcourt died in 1727. We recall that George Osmond had measured the depth of the new canal right up to the doorstep of Harcourt’s house. As for Lord Bingley, he too had served in the Harley administration as Chancellor of the
Exchequer. He had then become known to the group known as the ‘Society’ formed in 1711, along with Arbuthnot, Swift, Prior, Lord Harley and Bathurst. Like Arbuthnot, he served as a commissioner for the new churches until he was removed in 1715. Anyone wishing to keep up to date on the progress of the building project could scarcely have collected a better range of informants.

The crucial figure, however, was Chandos, long a patron of the Scriblerians, who had made a munificent gift to the subscription volumes of Pope and Gay. This pair was responsible for the libretto of *Acis and Galatea*, first performed privately at the Duke’s palatial home at Cannons in June 1718, when Handel was house composer to Chandos. Around this time Dr Arbuthnot seems to have been present almost daily, dining or supping with the plutocrat no fewer than 70 times between January 1717 and May 1718. Naturally, Desaguliers was often in attendance. As early as 1713, Arbuthnot had been identified as Handel’s great patron and friend, who ‘has the composer constantly at his house’. The doctor owed a debt of gratitude, since Chandos had attempted without success in 1715 to get the Whig ministry to revoke his supersession as physician at court and at Chelsea Hospital.

Fifty-five letters from Chandos to Arbuthnot survive, dating from 1715 to 1734. They go into great detail about aspects of the Duke’s life and business affairs. Unfortunately, there is a hiatus between March 1725 and August 1728: the doctor was seriously ill in the summer of 1725, but made a good recovery by October. If any correspondence had survived from late 1725 or 1726 the progress of the York Buildings scheme might have figured. I have not been able to find any other references in the letterbooks that bear directly on *YBD*. Still, the Duke must have understood that among the few people alive capable of the satire was his mischievous friend, Dr Arbuthnot.

**Conclusion**

We need to take care in assessing the pamphlet literature surrounding controversial innovations. The growing public awareness of natural philosophy in the eighteenth century, documented by numerous recent studies on the scientific enlightenment, brought with it unintended consequences. These included an enlarged space for comic and satiric treatments of scientific issues. Such opportunities burgeoned after the South Sea mania, when legitimate and absurd projects vied for investors: the York Buildings Company itself became a bubble when, under Billingsley, it turned from its chartered business in pursuit of easier ways of turning a profit. An adequate enquiry means assessing the mode of the text, along with its methods, argumentative procedures and rhetorical devices. In the case of *The York Buildings Dragons*, this leads to a reassessment of its entire nature.

In the absence of external evidence, it is impossible to make a firm attribution of authorship, but we can hazard a number of statements with some confidence. *YBD* is a work of satire, exuberant and even risqué in its comic invention. Its irresponsibility and levity led the Duke of Chandos to brand it ‘stupid’. It is highly improbable that the pamphlet could have been written by his domestic chaplain, Desaguliers, who had nothing to gain from such an undertaking and lacked the requisite talents. Among the tiny number of people with the inside knowledge, the practised skills, and the willingness to offend were the Scriblerians, most of all Arbuthnot. The doctor was close to the key promoter of the scheme, Chandos, and it is evident that he was well acquainted with
Desaguliers from the numerous occasions when they met at Cannons.\textsuperscript{76} The doctor had other well-placed friends—Pope, Gibbs, Lord Harley, Bathurst—who could fill in any gaps left by his own intelligence system. He must be the prime candidate.

The doctor’s sceptical mood in late 1725 emerges in a letter to Swift, who was just completing \textit{Gulliver’s Travels}: ‘Before yow putt the finishing hand to it, it is really necessary to be acquainted with some new improvements of mankind that have appeared of late and are dayly appearing. Mankind has an inexhaustible source of invention in the way of folly, & madness’.\textsuperscript{77} So much for the improvements and inventions brought about by the promoters of the new science. Since the book did not come out until 1726, Arbuthnot cannot have known yet of an episode in the third voyage of Gulliver, where his host on the island of Lagado describes how about 40 years earlier some individuals ‘with a very little Smattering in Mathematicks’ procured a royal patent for erecting an academy of projectors, where ‘the Professors contrive new Rules and Methods of Agriculture and Building, and new Instruments and Tools for all Trades and Manufactures’. The consequences were dire: ‘a Club of Projectors’ arrived to destroy the informant’s mill, and cut ‘a Repository of Water, to be conveyed up by Pipes and Engines’. The attempt to drive the mill by pumping the water uphill failed, and ‘after employing a Hundred Men for two Years, the Work miscarryd, the Projectors went off, laying the Blame intirely upon him’.\textsuperscript{78} It is noteworthy that the ill-starred efforts of the projectors belong to the same area of emergent technology as those of the Colne River adventurers, of Robert Bumstead, George Osmond, of Matthew Palmer, of George Gordon and even of Case Billingsley. But in the case of Swift the scheme has an uncomfortable resemblance to the one that would soon be implemented to pipe water up from the Thames to the basin at Marylebone.

What \textit{YBD} shows is that the individuals practising new scientific skills for the benefit of trade and manufacture, whether as mathematical teachers, surveyors, engineers, patentees or public lecturers, did not enjoy unqualified admiration.\textsuperscript{79} Some among the older professional elite found their activities misconceived or simply risible. Satirists such as Arbuthnot and Pope had made it their business to pour scorn on the ‘philomath’ in a succession of pamphlets, seeking for instance to link the work of individuals like Whiston with the sphere of astrology. One easy target lay in the sometimes hucksterish form of advertising that the innovators employed, much as in the case of Dr Eaton’s styptic. It was much the same with public experiments such as those put on by von Hatzfeld to impress ‘the Lovers of Ingenuity’ with his scheme for perpetual motion.\textsuperscript{80} A further threat to the legitimacy of these operatives came from the fact that the always fragile reputation of the projector had taken a severe hit in the wake of the South Sea fiasco. Nor did it help that men caught up in the seamier bubbles, like Billingsley, had inveigled themselves into the new enterprises. \textit{The York Buildings Dragons} shows that the forefathers of Britain’s industrial rise in the eighteenth century did not command general public respect.

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See Al Coppola, *The theatre of experiment: staging natural philosophy in eighteenth-century Britain* (Oxford University Press, 2016), pp. 114–144 (Coppola accepts Desaguliers’ authorship of *YBD*).


In 1720 the murky dealings behind the acquisition of the Company by Billingsley and a colleague were exposed before a parliamentary committee. See *Journals of the House of Commons* (London, 1803), vol. 20, pp. 305–310. For further aspects of his career, see Stewart, *op. cit.* (note 1).


British Library, Add MSS 31623, f. 41; 36276A (no folio number). See also Stewart, *Rise of public science*, p. 292. The patent was given royal approval in 1728.

His proposal is among those ridiculed along with that of William Whiston in ‘Jeremy Thacker’, *The longitudes examin’d* (London, 1714), which is very likely the work of Arbuthnot. Whiston, together with Humphrey Ditton, had provided the impetus for the committee hearings in Parliament which led to the passage of the Longitude Act in July 1714. For Billingsley’s intended method, see Stewart, *op. cit.* (note 1), pp. 194–196.


*Carpenter, op. cit.* (note 2), p. 140.

*Carpenter, op. cit.* (note 2), p. 351.


Arbuthnot received his MD at St Andrews in 1696. The usual way in which friends such as Swift, Pope, Gay and Lord Bathurst refer to him is as ‘the Doctor’. Robert Harley, first Earl
of Oxford, wrote to Pope in 1721 of ‘those Evenings I have usefully & pleasantly spent with Mr Pope, Mr Parnel, Dean Swift, the Doctor, &c.’: G. Sherburn (ed.), *The correspondence of Alexander Pope* (Clarendon Press, Oxford, 1956), vol. 2, p. 91.


22 Carpenter, *op. cit.* (note 2), p. 139.

23 Carpenter, ibid. p. 139.

24 We know from the correspondence of Arbuthnot, Swift, Gay and Pope that in October 1725 the doctor had just recovered from a serious illness, that he was writing (‘busy about a book’), excited about the forthcoming publication of *Gulliver's Travels*, hoping to see his Scriblerian colleague Swift in the next few months and imagining ‘some of our old Club meet[ing] together’. See Angus Ross (ed.), *The correspondence of Dr John Arbuthnot* (Wilhelm Fink Verlag, Munich, 2006), pp. 258–259.


28 See [Arbuthnot], *To the Right Honourable the Mayor and aldermen of the City of London: The humble petition of the colliers, cooks, cook-maids, black-smiths, jack-makers, brasiers, and others*, published by Roberts in 1716. For the demonstrations of the burning glass by George Willdey and others, see Jeffrey R. Wigelsworth, *Selling science in the age of Newton: Advertising and the commoditization of knowledge* (Ashgate, Farnham, 2010), pp. 68–69. Willdey was ‘the most prolific advertiser for items of public science’ (Wigelsworth, p. 66), but seemingly escaped the satirist’s ridicule in *YBD*. For the background to the reference in *YBD*, see Gregory Lynall, ‘Bundling up the sun-beams’: burning mirrors in eighteenth-century knowledge and culture’, *J. Eighteenth-Cent. Stud.* 36, 477–490 (2013).

29 *Phil. Trans. R. Soc. Lond.* 30, 900–902 (1717–19). Pound used as a prop for his telescope the former Maypole in the Strand, which had been purchased by Sir Isaac Newton and later presented to Arbuthnot. Arbuthnot’s first publication, *Of the laws of chance* (1692), was largely a translation of Huygens’s *De ratiociniis in ludo aleæ* (1657). Not everyone would have been aware where ‘the Hugenian Telescope’ came from, but Arbuthnot certainly knew.

30 *Daily Courant*, 30 May 1717, which adds that a course in anatomy with the aid of these models was to be given by Joshua Symonds, surgeon. Desnoues made further visits in 1719, 1727 and 1730. Arbuthnot was a director of the Royal Academy of Music in 1720. He belonged to a ‘club’ of music lovers centred on the Duke of Chandos at Cannons: see Graydon Beeks, ‘“A club of composers”: Handel, Pepusch and Arbuthnot at Cannons’, in *Handel tercentenary collection* (ed. Stanley Sadie and Anthony Hicks), pp. 209–221 (UMI Research Press, Ann Arbor, MI, 1987).

31 Pope first satirized ‘the wicked Works of Whiston’, referring to the heterodox Boyle lectures, as early as 1708 (Sherburn, *op. cit.* (note 19), vol. 1, p. 26).

32 See for example *Daily Post*, 15 December 1724. Eaton claimed that the styptic was a certain cure for external wounds and ‘inward Bleedings’. He wished to gain a patent as this would exempt his
premises from the inspections to which shops selling drugs in the City of London were subject. Arbuthnot as one of the censors for the Royal College of Physicians carried out the first inspection in 1724, and incurred the anger of a druggist when ordering his stocks to be destroyed. 


All the individuals below except Henley and Cunn are identified by Stewart, op. cit. (note 1), pp. 348–350.

See Addison’s contributions to Guardian, 11 July 1713, and other materials cited by Marjorie Nicolson and G. S. Rousseau, ‘This long disease, my life’: Alexander Pope and the sciences (Princeton University Press, 1968), pp. 144–145. Shortly after this, Arbuthnot, Pope and Gay began their campaign of ridicule against Whiston, which occurred at the same time as their break with Addison and other adherents of the Whig ministry.

Daily Post, 21 April 1724; Daily Journal, 8 May; Evening Post, 9 May.

Pope cites this self-description in a note to the Dunciad, and also twists it in the text: ‘Oh great Restorer of the good old Stage, / Preacher at once, and Zany of thy Age!’


In the first edition ‘William’. There was a William Bumpstead, a member of the Barber-Surgeons’ Company, but Stewart, op. cit. (note 1), p. 348, is right to say that Robert is more likely to be meant: indeed, the second edition has his name as ‘R’1. He was a watchmaker in Holborn, London.

See To the Honourable the House of Commons the humble petition of Robert Bumpsted (ca 1724), claiming that his engine would supply water more effectively.

The National Archives, C 212/16/7; Bennet Woodcroft, Alphabetical index of patentees of inventions ([London], 1852), p. 423.

British Library, Add MS 36123, ff. 32–43.


It is advertised as just published, Daily Journal, 30 May 1724. Hatzfeld also became involved in an acrimonious dispute between the projectors, Charles Povey and Ambrose Godfrey FRS, about fire extinguishers (Daily Post, 25 May 1723). Among the projects attributed to the great Scriblerus was one on ‘Perpetuum Mobiles’ (Memoirs, p. 167).


London Evening Post, 17 October 1732. Immediately after the appearance of YBD, Gordon had brought out his Introduction to Geography and Astronomy, ‘Recommended by Dr. Desaguliers’, and dedicated to a man disliked by Arbuthnot and his friends, Sir Robert Walpole (Daily Post, 14 February 1726).

For Whiston’s place among the projectors, see ‘The longitudinalians’ in Stewart, op. cit. (note 1), pp. 183–211. For the background, see Richard Dunn and Rebekah Higgitt, Finding longitude: how ships, clocks and stars helped solve the longitude problem (Collins, Glasgow, 2014).

M. H. Port (ed.), The commissions for building fifty new churches: The minute books, 1711–27, a calendar (London Record Society, London, 1986), p. 56. For Osmond’s work on other churches, see Lambeth Palace Library, MS 2714, f. 34; and E. G. W. Bill (ed.), The Queen Anne churches: a catalogue of the papers in Lambeth Palace library of the commissioners for building fifty new churches in London and Westminster 1711–1759 (Mansell, London, 1979), index under ‘Osmond (George)’, pp. 211–212. Among those who engaged with the surveyors, Gibbs, Nicholas Hawksmoor and John James, on the churches were Newton,
Edmond Halley, Sir Christopher Wren and Sir John Vanbrugh. Arbuthnot had been one of the commissioners to support Gibbs in his bid to become surveyor (Minute books, pp. 24–25).


55 Commons journals, vol. 20, pp. 381–382. Other MPs owed their seat to Chandos and followed his lead. Among them were two more cousins, Nicholas Philpott, who represented the venal constituency of Weobley, and George Brydges, member for Winchester. Sir Hungerford Hoskyns, knight of the shire for Herefordshire (who married Mary Leigh, the Duke’s niece) retired from the Commons in 1722. Five years later the Duke’s son and his nephew John Walcot entered the Commons. Stewart, op. cit. (note 1), p. 319, mentions Humphrey Walcot, John’s uncle, another MP, as a protégé of the Duke, but omits a family connection: Humphrey was a brother-in-law of Chandos, as then conceived (his brother married the Duke’s sister). Westfaling, Philpotts, and a ‘Mr Walcot’ all dined at Canons in early January 1718 along with Desaguliers (Beeks, op. cit. (note 31), p. 211).

56 Chandos to Westfaling, Huntington Library Stowe MSS 57, XXV, f.61, cited by Stewart, op. cit. (note 1), p. 340. Stewart also demonstrates Lowther’s knowledge of mining engineering.

57 Stewart, op. cit. (note 1), pp. 335, 351.

58 Another factor may help to explain Osmond’s presence. For many years he had served as contractor on waterworks developed at Hertford and Hackney by the unscrupulous financier and MP, John Ward (not the mathematics teacher of this name). In 1724 Osmond undertook to supply a new engine house for the Hackney works on the River Lea, as well as other machinery, but the plan was never realized. A petition was brought to parliament on 13 February 1725 by Harcourt and Bathurst, as trustees for the duchess’s son. Bathurst was a member of the Brothers Club and a good friend of Arbuthnot.

59 John Ward (b. ca 1648) produced the first edition of his Guide in 1707. His own scheme for the longitude, involving a spring-driven watch in a vacuum chamber, would unquestionably have come to Arbuthnot’s attention. In his Practical method to discover the longitude at sea, by a new contrived automaton (J. Woodward, London, 1714), sigs. [A]3r–[A]4v, Ward launches a fierce attack on the credentials of ‘Jeremy Thacker’ (see n. 9). There is a connection too with George Gordon, who edited the posthumous mathematical works of Ward in 1730.


62 See, however, the reservations on this point expressed by Francis Doherty, A study in eighteenth-century advertising methods: the anodyne necklace (Edwin Mellen Press, Lampeter, 1992), pp. 31–32.

63 For one of many ads using this form of words, see Read’s Weekly Post, 3 October 1724. The italics indicate a quotation.

64 The dura mater and the pineal gland figure in the mock autopsy conducted on the body of Dr John Woodward in An Account of the Sickness and Death of Dr. W—dw—d (1719), pp. 11–12, very likely to be work of Arbuthnot.

65 In The critical specimen (1711), Pope satirizes the writer John Dennis under the name of ‘Rinaldo Furioso, Critick of the Woful Countenance’.


67 If Arbuthnot did write the pamphlet, he might have recalled that a man he called ‘the Dragon’, Robert Harley, Earl of Oxford, lived at 13 Buckingham Street while he was Lord Treasurer and a member of the Scriblerian group, whose meetings he sometimes hosted there.

Phil. Trans. R. Soc. Lond. 18, 42–44 (1694). Cowper had observed public trials of Colbatch’s medicine, involving vivisection on a dog (as with a similar experiment performed without success at the Academy of Lagado in Gulliver’s Travels).


Sherburn, op. cit. (note 19), vol. 2, p. 298.

See a letter from the brother of the first Earl of Oxford to the second: Edward ‘Auditor’ Harley to Lord Harley, 6 March 1721, in Historical Manuscripts Commission, Portland papers (HMSO, London, 1899), vol. 5, p. 617 (for other lessees, see same to same, 21 June 1720, p. 598); Mist’s Weekly Journal, 24 April 1725.

Pope was later accused of having based his description of Timon’s villa in the Epistle to Burlington (1731) on Cannons, something he vigorously denied. Lines such as ‘two Cupids squirt before: a Lake behind / Improves the keenness of the Northern wind’ (pp. 11–12) might have reminded some readers of the water features, for which Desagulier was likely responsible.


Arbuthnot was not, like Desagulier, prominent in Freemasonry. However, in 1724 his name appeared on the roll of the Lodge of Freemasons at the Bedford Head, Covent Garden. Among other members of this lodge were the mathematicians Brook Taylor FRS and Martin Folkes PRS, as well as the physician, Thomas Pellet FRS, all of whom had established contacts with Arbuthnot. See Ric Berman, ‘The Bedford Head Lodge and the Royal Society’, in The foundations of modern freemasonry: the grand architects: political change and the scientific enlightenment, 1714–1740 (Sussex Academic Press, Eastbourne, 2012), pp. 102–103.

Arbuthnot to Swift, 17 October 1725, in Ross, op. cit. (note 24), p. 258.


Throughout The rise of public science, a number of obstacles to what Stewart calls ‘the legitimation of science’ (p. xx) appear in his survey of the disputes that went on over the propriety of public experiments.

Daily Post, 29 November 1721.