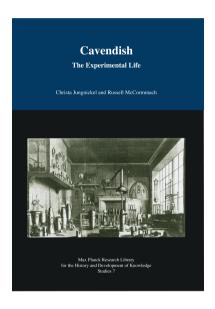
Max Planck Research Library for the History and Development of Knowledge

Studies 7

Christa Jungnickel and Russell McCormmach:

The Dukes



In: Christa Jungnickel and Russell McCormmach: Cavendish: The Experimental Life (Second revised edition 2016)

Online version at http://edition-open-access.de/studies/7/

ISBN 978-3-945561-06-5

First published 2016 by Edition Open Access, Max Planck Institute for the History of Science under Creative Commons by-nc-sa 3.0 Germany Licence.

http://creativecommons.org/licenses/by-nc-sa/3.0/de/

Printed and distributed by:

PRO BUSINESS digital printing Deutschland GmbH, Berlin

http://www.book-on-demand.de/shop/14971

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.d-nb.de

Chapter 1 The Dukes

Repeated rejections by the aristocracy of attempts by the crown to increase its power culminated in the Revolution of 1688–89, which made the state subservient to the landed aristocracy. This class was not separated off from the rest of society by legal privileges. By and large, it was well intentioned and able to rise above self-interest, though it believed that only it was capable of governing the country, and its well of sympathy for the poor was shallow. It included a wide varety of individuals, most of whom were admirable enough, though there were always some who pursued their pleasures with evident disregard for the other orders of society. The historical judgment is that the aristocracy acted responsibly overall. In the century following the Revolution, it recognized that its advantages came with an obligation to undertake unpaid and often demanding work in the interest of the common good. Its example of public service assured its survival at the same time as it contributed to the governing of the nation. This tradition implicitly contained the direction that Lord Charles and Henry Cavendish took with their lives.

In the spring of 1691, two young English aristocrats on a grand tour of the Continent met in Venice and apparently liked one another well enough to begin a correspondence after they parted.² The older of the two was Henry de Grey, Lord Ruthyn, then not quite twenty, the younger, the nineteen-year-old William, Lord Cavendish. Forty years later, in 1731, they were to become the grandfathers of Henry Cavendish, although William did not live long enough to know of this grandson.

The eldest sons of propertied English earls, the two young men, accompanied by tutors and servants, met as seasoned travelers despite their youth. William Cavendish had already been abroad for over two years, Henry de Grey for over a year.³ William was on his way to Rome, Henry returning from there. Both of them were no doubt acquiring the rudiments of their later great interest in the arts and architecture, but letters about their travels do not show any youthful ardor for the beauties of Italy, Switzerland, or Holland. In Rome, William Cavendish and his younger brother Henry did "little or nothing ... that was worth giving your Lordship and account of." From Padula, Frankfurt, and The Hague, they reported seeing friends or missing them, as they crisscrossed the Continent, but said not a word about the

¹M.L. Bush (1984, 12).

²William Cavendish to Henry de Grey, 30 May/9 June 1691 and 23 Dec. 1691, Bedfordshire Record Office, Wrest Park Collection, L 30/8/14/1–2.

³One of William Cavendish's first stops on the Continent was Brussels. From there he wrote to his mother-in-law, Lady Russell, that he was about to continue on his tour, and she approved, "for to live well in the world; 'tis for certain most necessary to know the world well." Rachel Russell (1793, 415–416). Henry de Grey, as "Lord Ruthven," had been issued a pass on 16 April 1690 "to travel abroad for purposes of study." George Edward Cokayne (1982, 3:176–178).

⁴William Cavendish to Henry de Grey, 7/19 May 1691, Bedfordshire Record Office, Wrest Park Collection, L 30/8/21/1.

finer things of classical civilization these young English barbarians had been sent abroad to experience.

What did interest them was the war threatening between England (and its allies) and France, and the dynastic quarrels that were giving rise to it. The war might affect their travel plans as it did Henry de Grey's, but, more important, it was to be fought to secure the rights to power and property of certain European ruling families; that was the usual purpose of wars then, and understandably a matter of concern to aristocrats of high rank like young Cavendish and Grey. "The Elector of Brandenburg has declared, that he will fulfill the Promise he made to the Duke of Lorraine, at the siege of Bonn, to maintain the interests of his children and to contribute to their restoration. The Emperor and all the allys have declared the same thing," William Cavendish reported to Henry de Grey in the summer of 1691. Concern for the dynastic interests of the ruling family that an aristocrat chose to ally himself with was very much a concern for the interests of his own family. That was why William Cavendish was ready to risk his life in battle in 1691 and why his father had risked his life only three years earlier to secure the interests in England of the Protestant branch of the Stuarts.

In 1688, William Cavendish's father, the earl of Devonshire, had joined six other English aristocrats in the risky business of inviting William of Orange to the British throne, even though that throne was then rightfully occupied by James II and could someday be legally claimed by James's son, who had just been born. If their scheme of deposing James had misfired, they might have suffered the fate of traitors. But luck was with them, and with the succession of William and his Stuart wife, Mary, to the crown, the earl ensured abundantly the survival of the Cavendish family in political power and in the enjoyment of their property. In 1691, in the spring in which William and Henry met in Venice, the earl of Devonshire outshone "most of the Princes," including the Elector of Brandenburg, with his "magnificent" establishment at the Royal Congress at The Hague, to which he had accompanied King William as lord steward. Three years later, in 1694, the royal couple rewarded his services by raising the earl to duke of Devonshire, the highest rank short of royalty.⁶

The Cavendishes rose to their title relatively quickly, in not much more than a century, and they prepared for it by a steady accumulation of landed property until they were among the richest landowners in England. Along the way, they used some of their money to buy first a baronetcy and then an earldom when the political shifts of the seventeenth century from monarchy to commonwealth and back prompted the granting of royal favors. They remained loyal to the Stuarts—being prudent enough to make their peace with the commonwealth as well—until under Charles II such loyalty was no longer in their financial and political interest.

Kent

If the dynastic concern of the Cavendishes was to further strengthen their newly found hold on the top rung of the social ladder, that of the Greys was to reclaim their former footing. The Greys had been earls of Kent since the fifteenth century, Henry de Grey's father the eleventh of the line. But Henry's branch of the family had succeeded to the title and the

⁵Cavendish to de Grey, 30 May/9 June 1691. Italics added.

⁶John Pearson (1983, 68–71), Francis Bickley (1911, 170–174).

⁷Pearson (1983, 61).

estate only in the middle of the seventeenth century, beginning with a country rector with a very large family who was too poor and too old to take his seat in the House of Lords. His successor, Henry's grandfather, did enter politics, but on the wrong side as it turned out, adopting the cause of parliament against the king. After the restoration of the Stuarts, the Greys prudently kept their distance from court and parliament. In any case, their most pressing need was still to secure their estate and finances; at court or in government in those troubled years, they would only have risked making enemies or spending money that they could not afford. Taking big chances, as the earl of Devonshire had on behalf of William of Orange, was acceptable to a prudent man only if he had power, and power then derived from landed property. Nor would they take chances with the life of their heir. Instructing Henry to leave Holland before the king arrived there for his campaign, Henry's father wrote to him: "It would be expected you should go to the campaign with him, and not to do it would be took ill both from your father and you." So Henry traveled on to Geneva, safely away from the king, and from there, against his cautious parents' wishes, into Italy.

For ten years after his return from the Continent in 1691, Henry de Grey lived the life of a well-to-do private gentleman, in 1695 marrying Jemima Crewe (Fig. 1.2), daughter of the English politician Thomas Crewe, 2d baron Crewe. Taking up neither of the usual two occupations of young aristocrats, the military or parliament, Henry's public life began almost simultaneously with the reign of Queen Anne. At her coronation, Henry's father carried one of the swords of state; four months later, in August of 1702, his father died suddenly in the middle of a game of bowls, leaving Henry his heir, on his way to the House of Lords as earl of Kent. A nonpolitical man, Kent stood for neither power nor party, unlike his friend Devonshire, who sought and acquired political power and served the Whig cause with a fierce loyalty. Kent's political career had only this in common with Devonshire's, high ambition for his family, which in Kent's case took the form of self-interested maneuvering at court. For his long, faithful services at court, Anne elevated him to duke (Fig. 1.1).

If Henry de Grey had any brothers, they died young, for soon the love and hope of his family focused on him. He responded by developing into an affectionate young man, goodnatured and easy-going. Once he had a family of his own, his concern for his wives—after his first wife died, he remarried—and his children was reflected in their letters to him, full of warmth and appreciation. He was not especially gifted in anything, but he had sufficient intelligence and curiosity to inform himself on a wide range of subjects, including science, as his substantial library attests. He had sufficient vanity to aspire to important positions at court, lacking only the drive to work for such positions by seeking political power. "A quiet mind is better than to embroil myself among the knaves and fools about either Church or State," he wrote in a moment of disappointment. He sought offices in the courtier's way, by gaining favor with influential people and then using his connections to request honors and positions. The offices he accepted were administrative rather than political, requiring abilities well within his reach, drawing on skills he already exercised in the running of his estate. He attended the House of Lords dutifully even after he came to dislike the burden in his middle years. 10 He displayed the same levelheaded estimate of his abilities in his later years, when his chief occupation came to be his estate at Wrest Park; on its agriculture

⁸Joyce Godber (1982, 2–3).

⁹Henry de Grey, duke of Kent to Prior, 26 July 1710, quoted in Ragnhild Hatton (1978, 121).

^{10&}quot;Memoir of the Family of De Grey," Bedfordshire Record Office, Wrest Park Collection, L 31/114/22, 23, vol. 2, 99.

and its gardens, he informed himself thoroughly, and he planned and directed the work on his properties with considerable and lasting success (Figs. 1.4–1.5). His enemies at court political opponents who wanted the positions he held, or rivals for royal favors—gave Henry de Grey the name "The Bug"; 11 they meant to ridicule him for being pompous and proud, for pretending to quality, but their view of him must be admitted to have some truth to it. A good looking man, he spent the money necessary to cut a fine figure; his annual clothes bills ran higher than those of his wife and several daughters combined, not only while he held high office at court and needed expensive formal apparel, but long before, as a young man about town. On his tomb, he had himself sculpted wearing a Roman toga over a strong, muscular body, his curly hair cropped close to his head, resembling in face and attire Laurent Delvaux's statue of George I, undeniably betraying a certain vanity. A large family portrait painted about five years before his death shows him to be, on the contrary, a relatively short, slender man whose simple velvet coat is decorated only with what appears to be the garter and ribbon. Far from posing as the patriarch in his own home, he has yielded center stage to his mother-in-law, the countess of Portland, who was governess of the royal children; he stands rather meekly by her side, receiving from her a cup of tea (Fig. 1.3). ¹² His pride lay in his "ancient and noble" family as he called it, which he hoped, in vain, as it turned out, to continue through his five sons. Not one of them survived him. He achieved a dukedom for his family in 1710, but he ended without an heir to inherit it, reduced to looking forward to its extinction with his death. All that remained for him to do was to build an ostentatious marble mausoleum, which although pompous, also evoked his struggle against so much disappointed hope.

The duke of Kent's two sons Anthony earl of Harold and the duke's namesake Henry de Grey were tutored by Roger Cotes at Trinity College, Cambridge. Cotes was then Plumian Professor of Astronomy and Experimental Philosophy and the most gifted of Newton's disciples. When Cotes died at age thirty-three, Newton said, "Had Cotes lived we might have known something!" As it happened, we do not know what his pupils might have done either, for they too died young, Anthony at twenty-seven, and Henry at twenty. It is noteworthy that Henry Cavendish's two uncles on his mother's side had a connection with a great mathematician who was active in founding the Newtonian school in Cambridge. In due time Cavendish would enter Cambridge knowing of his family's connection with it.

The Greys had a similar connection with another eminent scientist. For at least ten years beginning in 1736, the Kent estate served as a lecture theater in the physical sciences and an observatory of the heavens. In those years the duke of Kent and, after his death in 1740, the duchess of Kent employed Thomas Wright as a scientific teacher. He is the well-known astronomer who was first to describe the structure of the Milky Way in his *New Hypothesis of the Universe* appearing in 1750,¹⁴ when Henry Cavendish was the University. Born into an artisan family, self-taught in astronomy, Wright made his living by teaching

¹¹The earl of Godolphin to the duchess of Marlborough, [24 April 1704]. John Churchill, duke of Marlborough (1975, 1:284).

¹²Conversation Piece at Wrest Park, around 1735. See Fig. 1.3.

¹³"Cotes, Roger," *DNB* 1st ed. 4:1207–9. There was a further connection between the Greys and Roger Cotes. Roger Smith, Cotes's cousin and future successor to the Plumian Professorship, wrote to Thomas Birch, "As his [Cotes's] father was rector of Burbage formally held by the Earl [later Duke] of Kent, so by his Mother (a daughter of Major Farmer [?] In Leicestershire) he was pretty nearly related to the present Duke." Letter of 6 Jan. 1735/36, BL Add Mss 4318, f. 215.

¹⁴Thomas Wright (1971).

science, mathematics, and surveying, by publishing on these subjects, and by surveying the estates of the aristocracy. His pupils included Jemima, duchess of Kent, and Kent's daughters, Ladies Sophia de Grey and Mary de Grey (but not Lady Anne de Grey, who married Charles Cavendish), his son-in-law Lord Glenorchy, and his granddaughter Jemima, the future Marchioness Grey. He taught the Kent women geometry, navigation, surveying, and no doubt other subjects from his ambitious curriculum. Residing for months at a time at Wrest Park, Wright probably did surveying there as well as teaching, for the duke was constantly building, and the duchess, Wright noted in his diary, surveyed the garden and made plans for it. We know that Wright designed a rustic, thatched cold bath for the Marchioness Grey at Wrest Park. 15 Wright also carried out his own astronomical studies at Wrest Park; from there in 1736, for example, he communicated to the Royal Society his observations of the eclipse of Mars by the moon. 16 Wright was still teaching the Kents when Henry Cavendish was fifteen, and no doubt he and his father became acquainted with him at Wrest Park and in London on their visits to the Grey townhouse. When the duke of Kent died, his "Closet" included a surveying instrument described as a "Spirit Level with a Telescope Light two foot long by Wright" together with a variety of other mathematical instruments. 17

Occupying 120 acres and enclosed by a two-mile gravel walk, the elegant garden at Wrest Park contained mementos of friends and of royalty whom the duke had served or admired, which included statues of King William (because the duke was a "good Whig") and of Queen Anne (because she was a "good Servant"). Standing in a corner of the garden was a pyramid inscribed with the years of the beginning and end of the duke's proud improvements of the estate. The larger setting, the park, contained 800 acres, enclosed by a grass walk, with plantations of lemon and orange, irregular clusters of "venerable" oaks, canals containing fat carp and pike, an obelisk eighty-six feet high, extensive lawns, a pavilion, a greenhouse, a bowling green, statues, vases, a temple of Diana, falls, ridings, and herds of deer. In the distance, cottages and churches could be seen, including a church resembling a picturesque ruined castle. The grand house of the estate was approached by a broad, tree-flanked avenue lying in the park. This description is from a letter written at Wrest Park in 1743, three years after the duke's death, by Thomas Birch, a literary man and later secretary of the Royal Society who thought that the best room in the house was the library. 18 Wrest Park with its wealth of books and with its artful blend of geometrical precision and natural grandeur would have been a familiar scene to Charles and Henry Cavendish. Kent's legacy to them was a breath of cultural interests, including science, outside of politics and pride in the standing of his family, symbolized by his creation, Wrest Park.

Devonshire

Growing up in the shadow of the "Great Duke of Devon"—his contemporaries spoke of the first duke of Devonshire as if he were already a legend—Henry Cavendish's other grandfather, William Cavendish, the future second duke of Devonshire, could have been crushed

¹⁵David Jacques (1983, 70).

¹⁶Entries from Thomas Wright's diary, in Edward Hughes (1951, 13–22). His observations at Wrest Park are reported in 28 Oct. 1736, Journal Book of the Royal Society, 15:371. Hereafter JB, Royal Society

¹⁷Bedfordshire Record Office, Wrest Park Collection, L 31/184.

¹⁸Draft of a letter by Thomas Birch from Wrest Park, 28 Sep. 1743, British Library Add Mss 4326B, ff. 180–182. Hereafter BL.

completely. The first duke was a willful, flamboyant man who defied and created kings, picked violent quarrels at the drop of a hat, ¹⁹ and rebuilt one of England's finest great houses, Chatsworth (Figs. 1.6–1.7). In any event, the son grew up to be more mature, better balanced, more reasonable, and on the whole a much more solid and, one suspects, more intelligent man than the father, and, in the trade-off, much less exciting. About the second duke there are none of the stories about duels and mistresses, street fights and defiance of authority that make the first duke so fascinating. Up to a point, young William, reasonably enough, allowed his life to be directed by his father: at sixteen, he was married to fourteen-year-old Rachel Russell, daughter of Lord William Russell, Devonshire's former political ally and friend and now "martyr" to the Whig cause. 20 As soon as William came of age, he followed his father into politics, in his early years serving as a Member of Parliament. He even imitated his father's boldness, taking initiatives and speaking frequently for his principles in the House of Commons, on one occasion going so far as to challenge an opponent. But when he spoke, he spoke his own mind, not his father's, and in addressing conflicts, he was much more likely to use reason, persuasion, and compromise than the sword. "His mansion was not a rendezvous for the assemblies of foppery," it was said of him: "none were permitted to partake of the... refined... pleasures of his house... but the ingenious, the learned, the sober, the wise." He was not really that proper, but he did value learning and cool judgment, and in an environment of courtly intrigue and political passions, he impressed the duke of Marlborough as a "very honest man" and a man who "governs himself by reason." George I, according to Lady Cowper, thought so too: he was one of only two men in the kingdom whom the king had found to be "very honest, disinterested."²³

Of his relationship with his family we get a glimpse only now and then. On his Continental tour, as a newly married boy, too young yet to be allowed to live with his wife, he wrote considerate letters to his mother-in-law, Lady Rachel Russell, to which she replied: "I can have no better content in this world then to have your Lordship confirm my hope that you are pleased with your so near relation to us here, that you believe us kind to you, and value our being so."²⁴ The boy's thoughtfulness and good breeding made his high expectations all the more agreeable. Writing about William and Rachel's marriage, Lady Russell sensibly remarked: "We have all the promising hopes that are (I think) to be had; of those I reckon riches the least, though that ingredient is good if we use it rightly."²⁵ William and Rachel Cavendish used their riches responsibly and tried to teach their children to do the same, Rachel apparently being the parent who dealt with the children. "I must needs tel you yt yr your father can by noe means allow you to goe on in this way," she admonished their second son James for gambling while on tour abroad, "& so he bids me tel you ye expanses of yr travels have been very great already without ye addition, more I believe than is allow'd to most elder brothers, & tho I hope yr father is able to make you very easy in yr fortunes yet you may consider ye more you spend abroad so much ye less you will have at home whare it wou'd doe you more credit & I should think the more for yr owne satisfaction to spend

¹⁹Great Britain, Historical Manuscript Commission (1924, 60, 240, 268–269, 271–272, 276).

²⁰Lois G. Schwoerer (1988, 161–63).

²¹Hiram Bingham (1939, 308).

²²Duke of Marlborough to earl of Godolphin, 14/25 June 1708, in Churchill (1975, 2:1011).

²³George I quoted by Lady Cowper, 10 July 1760, in Mary, Countess Cowper (1864, 115).

²⁴Lady Rachel Russell to William Cavendish, 5 Oct. 1688 (1793, 410).

²⁵Lady Rachel Russell to Dr. Fitzwilliam, 29 June 1688 (1793, 399).

yr money amongst yr friends than strangers."²⁶ James never learned the value of careful husbandry of his means, but, as we shall see, his younger brother Charles, accompanying him on this trip, learned it very well. Like many of his well-to-do contemporaries, William, their father, did spend some of his fortune on works of art; however, even as a collector he managed to enrich the family fortune. Whether from frugality or good taste, he avoided the more expensive but often second-rate large works and instead acquired one of the finest collections of old master drawings, including works by Raphael, Dürer, Holbein, Rubens, Van Dyck, and Rembrandt.²⁷

Dukes, Duchesses and Properties



Figure 1.1: Henry de Grey, Duke of Kent. By Jacopo Amiconi? Courtesy of the Bedfordshire Record Office

²⁶Rachel, duchess of Devonshire, to James Cavendish, [late 1722 or early 1723], Devonshire Collection, Chatsworth.

²⁷Pearson (1983, 87-88).



Figure 1.2: Jemima Crewe, Duchess of Kent. First Wife of the Duke. By Riley. Courtesy of the Bedfordshire Record Office.



Figure 1.3: The Kents. *Conversation Piece at Wrest Park*. Probably by Charles Phillips, around the year Anne de Grey, Henry Cavendish's mother, was born. At the duke of Kent's country house at Silsoe in Bedfordshire. From left to right: Mary de Grey, William Bentinck, Barbara Godolphin, Lord Berkeley, Charles Bentinck, earl of Clanbrassil, countess of Portland, Henry de Grey (duke of Kent), Jemima Campbell (later Marchioness Grey), Sophia de Grey (duchess of Kent), Elizabeth Bentinck, countess of Clanbrassil, and Countess Middleton. Courtesy of the Bedfordshire Record Office.

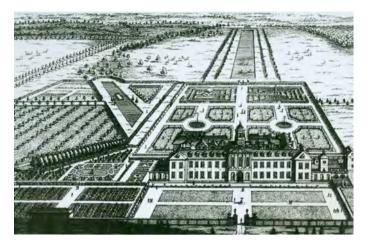


Figure 1.4: Wrest House and Park. By Pieter Van der Aa. In Bedfordshire. This shows the house, garden, and park as they appeared around 1708. The present Wrest House was built in the nineteenth century.



Figure 1.5: Wrest Park. Photograph by the authors. Wikimedia Commons.

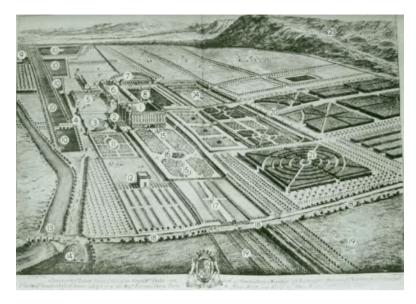


Figure 1.6: Chatsworth House and Gardens. By Pieter Tillemans. Turn of the eighteenth century. Seat of the dukes of Devonshire, in Derbyshire. Construction began in 1687.



Figure 1.7: Chatsworth House. Photograph by the authors. Henry Cavendish's papers are kept there.



Figure 1.8: William Cavendish, Second Duke of Devonshire. By Charles Jervas. Devonshire Collection, Chatsworth. Courtesy of the Chatsworth Settlement Trustees. Photograph Courtauld Institute of Art.



Figure 1.9: Rachel (Russell), Duchess of Devonshire. By M. Dahl. Devonshire Collection, Chatsworth. Courtesy of the Chatsworth Settlement Trustees. Photograph Courtauld Institute of Art.

William's reliance on reason and integrity, a quality apparently shared by his wife, also is reflected in their family life. "I have always taken you to have a very good understanding," Rachel wrote to James; "if you make but the right use of that, you will know what is most for yr owne good." They encouraged their children to think for themselves. In the matter of an allowance, for example, Rachel twice asked James what he might need while he was abroad, his parents reserving the right to disagree with him: "I thought I was right to ask yr opinion as to ye sum, concluding I knew you soe well yt if I shou'd happen to think it too much, you wou'd not take it ill yt I told you soe." Their difference of opinion resulted in a compromise, with James sending pleasing reports of his economy to his parents. With regard to the boys' travels, too, "yr father in that wo'd be willing to do what he thought was most agreeable to yr own inclinations ... you may let me know what yr own thoughts are." In a future son-in-law, William and Rachel valued that he was said to be "very sober & of an extreem good character wch is above every thing elce." This sensible family life not only nurtured love and respect but also the clear thinking and the levelheaded assumption of responsibility of Charles Cavendish.

From the time he returned from his Continental tour until his death in 1729, William Cavendish, second duke of Devonshire from 1707, continuously devoted his life to public service at the highest level of government. To the Whig interest, he brought not only his own political but also his wife's strong personal desire. Rachel Russell had been brought up not to forget the injustice done her family by her father's execution in 1683 at the hands of the Stuarts. Nine years old at the time of her father's trial and execution, she had been taken by her mother to see her father imprisoned at the Tower.³² Her mother had later written about her: "Those whose age can afford them remembrance, should, methinks, have some solemn thoughts for so irreparable a loss to themselves and family."33 Attending the proclamation of William and Mary as king and queen, Rachel pronounced herself "very much pleased" to see them take the place of "King James, my father's murderer." ³⁴ Lady Russell tried to turn the family suffering for the Whig cause to her son-in-law's political advantage. Soon after William Cavendish's return in 1691, his "friends," including Lady Russell, exerted their influence to have him stand for Member of Parliament for Westminster. Lady Russell warned off other potential Whig candidates, reminding them of their political debts: "I believe the good his father did in the House of Commons [...] will be of advantage to this [William Cavendish's candidacy]. And it will not hurt his interest that he is married to my Lord Russell's daughter."³⁵ The Russell name was then thought so great a guarantee of political success that in 1695 two of the principal government Whigs unsuccessfully tried to talk Lady Russell into letting her fifteen-year-old son stand for Parliament, certain that he would be elected and bring in another Whig with him.³⁶

That year her oldest son, William, began his parliamentary career as member for Derbyshire, his home county. The Russells, like the Cavendishes, had received official recog-

²⁸Rachel, duchess of Devonshire, to James Cavendish, [late 1722 or early 1723].

²⁹Rachel, duchess of Devonshire, to James Cavendish, 20 Mar. 1723, Devon. Coll.

³⁰Rachel, duchess of Devonshire, to James Cavendish, 13 Feb. 1724, ibid.

³¹Rachel, duchess of Devonshire, to James Cavendish, [late 1722 or early 1723].

³²Mary Berry (1819, 36).

³³Lady Rachel Russell to her daughter Rachel Russell, [1687], Berry (1819, 81).

³⁴Rachel, duchess of Devonshire, to a friend, Feb. 1689, Berry (1819, 93–96, on 95).

³⁵Lady Rachel Russell to Mr. Owen, 23 Oct. 1691 (1793, 533).

³⁶W.L. Sachse (1975, 107).

nition for their services the year before, when William's father was raised to a duke and Rachel's grandfather, William Russell, became the first duke of Bedford, an honor that would have gone to her father if he had lived.

The Revolution of 1688–89 elevated the Cavendish family and at the same time gave them a political direction. The Declaration of Rights of 1689, enacted as the Bill of Rights, prescribed the religion of the monarch, limited his prerogative powers, increased the powers of Parliament, and in general discouraged the prospects of a despotic monarchy.³⁷ The Declaration had left open to dispute the exact relations between king and Parliament, and William Cavendish, as marquess of Hartington, stood over the gaps. (The duke of Devonshire had a subsidiary title marquess of Hartington, which his eldest son was allowed to borrow as a courtesy title.) Hartington's actions in the House of Commons suggest the political identity he created for himself. Rarely participating in committee work on so-called private bills, which dealt with local problems such as bridge repair and individual estates, he preferred to address general questions, for example, the king's request to retain a large army after the peace of Ryswick. He opposed the request, as did Parliament, on the grounds that it was forbidden by the Bill of Rights as a threat to English liberty.³⁸ At the beginning of the eighteenth century, the criticism of government was redirected toward the king and his ministers for corrupting Parliament, which itself was now seen as a threat to liberty.³⁹ William extended his concern with rights of the House of Commons to the "Rights and Liberties" of "all the Commons of England," asserting the subject's right to address the king for calling, sitting, and dissolving Parliament, his right to a speedy trial on every charge including impeachment, and his right to vote as standing above the privileges of the House. In the House of Commons, William came to be closely associated with Robert Walpole. 40 William subsequently moved to the House of Lords as the second duke of Devonshire when his father died in 1707, having ordered inscribed on his tomb, "Here lies William duke of Devonshire, a faithful subject of good princes, and an enemy to tyrants."

Although this is not the place to discuss in detail the career of the second Duke of Devonshire, we believe it is important to give the reader an idea of it, since it enters into our understanding of his son Charles and his grandson Henry Cavendish. First, his, the second duke's, public position affected theirs; for them, and for all those with whom they came into contact, their being a Cavendish was a matter of no small significance. Second, the nature of the duke's career reveals much about his understanding of his public role and obligations, and, as we will see, Charles brought a similar understanding to his own public service, as did his son Henry. In his scientific work, Henry would not have had in mind his family's political principles, but his aspiration suggests a comparison; the political Cavendishes secured the rights and laws of the kingdom, and another Cavendish in another endeavor sought the ruling laws of nature.

At the time Cavendish entered science, the Whig cause was nearly spent, and in a very general sense, power in society was coming to be determined less by custom and more by rule over nature, which included the experimental manipulation of nature. As human progress was seen to depend less on traditional authority and increasingly on the "authority of experiment," landed families such as the Cavendishes had a vested interest in the world of Henry

³⁷Lois G. Schwoerer (1996, 47–57).

³⁸Henry Horwitz (1977, 250).

³⁹Schwoerer (1996, 49–57).

⁴⁰Horwitz (1977, 302–303). William Cobbett (1810, 5: cols. 256–57, 301).

Cavendish. As improvers of their estates, which comprised gardens, farms, mines, and investments in technical properties such as canals, they were unwitting Baconians, advocates of applied science. Through their work in and for science, Charles in the second half of his life and Henry throughout his life were not as removed from the practical concerns of their family as might first appear. The fifth duke of Devonshire, a man of conventional opinions, may have had a glimmering of it, even as he judged Henry Cavendish, his working cousin, to be the black sheep of the family.

⁴¹ Larry Stewart (1992, 253, 384–385, 391–393).