

From the Archives of Scientific Diplomacy

Science and the Shared Interests of Samuel Hartlib's London and Frederick Clodius's Gottorf

By Vera Keller and Leigh T. I. Penman***

ABSTRACT

Many historians have traced the accumulation of scientific archives via communication networks. Engines for communication in early modernity have included trade, the extrapolitical Republic of Letters, religious enthusiasm, and the centralization of large emerging information states. The communication between Samuel Hartlib, John Dury, Duke Friedrich III of Gottorf-Holstein, and his key agent in England, Frederick Clodius, points to a less obvious but no less important impetus—the international negotiations of smaller states. Smaller states shaped communication networks in an international (albeit politically and religiously slanted) direction. Their networks of negotiation contributed to the internationalization of emerging science through a political and religious concept of shared interest. While interest has been central to social studies of science, interest itself has not often been historicized within the history of science. This case study demonstrates the co-production of science and society by tracing how period concepts of interest made science international.

NETWORKS OF NEGOTIATION AND THE COMMUNICATION OF GLOBAL SCIENCE

In recent years, historians of science have rewritten the narrative of the Scientific Revolution by tracing global “cycles of accumulation.”¹ They have followed the practices of accumulating global particulars from their initial gathering via international commu-

* Robert D. Clark Honors College, 1293 University of Oregon, Eugene, Oregon 97403, USA.

** Centre for the History of European Discourses, Level 5 Forgan Smith Building, University of Queensland, St. Lucia 4072, Queensland, Australia.

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¹ Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Cambridge, Mass.: Harvard Univ. Press, 1987); David N. Livingstone, *Putting Science in Its Place: Geographies of Scientific Knowledge* (Chicago: Univ. Chicago Press, 2004); and Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone, 2007).

nication networks to their deposit within the archives and collections of new scientific centers.² Key examples of such archives have included the papers assembled by the Anglo-Prussian “intelligencer” Samuel Hartlib (ca. 1600–1662) and the archives of more formal learned associations such as the Restoration Royal Society. These have appeared to be extrapolitical archives—and indeed, in the case of the Royal Society, avowedly disinterested. The gentleman philosopher of the Royal Society has been seen as a critical *persona* distinguishing the ethos of emerging experimental science from utilitarian forms of knowledge, such as technology.³ However, by tracing one strand of a communication network linking figures such as Robert Boyle (1627–1691), Samuel Hartlib, and John Dury (1596–1680) to the political agent and son-in-law of Hartlib, Frederick Clodius (1629–1702), we hope to show that extrapolitical networks of global communication were interwoven with political networks of international negotiation.

At the crux of the relationship between these networks stands a particular seventeenth-century concept of interest. Interest, disinterest, and public interest have been central concepts in social accounts of the emergence of modern science since the 1970s.⁴ Peter Dear, for example, has stressed a shift from a philosophical search for truth to Johannes Kepler’s and Robert Boyle’s preference for disinterest. Harold Cook has argued that mercantile interest was fundamental to the worldwide exchange of goods. In what has become a paradigmatic study of the early Royal Society, Steven Shapin and Simon Schaffer argued that Fellows distinguished themselves from tradesmen by being financially disinterested in matters experimental. Such pecuniary disinterest related to political disinterest, for it rendered knowledge, they claimed, uncontroversial. Disinterest might therefore serve a political role in constituting a “polity of science” not populated by warring interests. Michael Hunter has stressed how Fellows of the Royal Society abjured

² Daniel Carey, “Compiling Nature’s History: Travellers and Travel Narratives in the Early Royal Society,” *Annals of Science*, 1997, 54:269–292; Pamela Smith and Paula Findlen, eds., *Merchants and Marvels: Commerce, Science, and Art in Early Modern Europe* (New York: Routledge, 2002); David Freedberg, *The Eye of the Lynx: Galileo, His Friends, and the Beginnings of Modern Natural History* (Chicago: Univ. Chicago Press, 2002); Ana Simões, Ana Carneiro, and Maria Paula Diogo, eds., *Travels of Learning: A Geography of Science in Europe* (Dordrecht: Kluwer, 2003); Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (Chicago: Univ. Chicago Press, 2006); Harold Cook, *Matters of Exchange: Commerce, Medicine, and Science in the Dutch Golden Age* (New Haven, Conn.: Yale Univ. Press, 2007); Deborah Harkness, *The Jewel House of Art and Nature: Elizabethan London and the Social Foundations of the Scientific Revolution* (New Haven, Conn.: Yale Univ. Press, 2007); and Lissa Roberts, ed., *Centres and Cycles of Accumulation in and around the Netherlands during the Early Modern Period* (Berlin: LIT, 2011).

³ Regarding the archives see Mark Greengrass, Michael Leslie, and Timothy Raylor, eds., *Samuel Hartlib and Universal Reformation: Studies in Intellectual Communication* (New York: Cambridge Univ. Press, 1994); and Michael Hunter, ed., *Archives of the Scientific Revolution: The Formation and Exchange of Ideas in Seventeenth-Century Europe* (Rochester, N.Y.: Boydell, 1998). On the avowed disinterest that characterized the Royal Society see Hunter, *Science and Society in Restoration England* (Cambridge: Cambridge Univ. Press, 1981), pp. 123–124; and Mary Poovey, *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society* (Chicago: Univ. Chicago Press, 1998), pp. 110–111. On the gentleman philosopher see Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, N.J.: Princeton Univ. Press, 1985).

⁴ Barry Barnes, *Interests and the Growth of Knowledge* (London: Routledge, 1976); Barnes and Donald MacKenzie, “On the Role of Interests in Scientific Change,” in *On the Margins of Science: The Social Construction of Rejected Knowledge*, ed. Roy Wallis (Keele: Univ. Keele, 1979), pp. 59–66; Steven Shapin, “The Politics of Observation: Cerebral Anatomy and Social Interests in the Edinburgh Phrenology Disputes,” *ibid.*, pp. 139–178; Shapin, “Of Gods and Kings: Natural Philosophy and Politics in the Leibniz–Clarke Disputes,” *Isis*, 1981, 72:187–215; Andrew Pickering, “The Role of Interests in High-Energy Physics: The Choice between Charm and Colour,” in *The Social Process of Scientific Investigation*, ed. Karin D. Knorr, Roger Krohn, and Richard Whitley (Dordrecht: Reidel, 1981), pp. 107–138; and Susan Haack, *Defending Science—Within Reason: Between Scientism and Cynicism* (Amherst, N.Y.: Prometheus, 2003) (in Ch. 7 Haack criticizes the loose use of “interest” in several of the studies listed above).

involvement with politics, while Larry Stewart has emphasized the Royal Society's claim to serve the public interest. Likewise, Bruno Latour has pointed to the same period as the origin of a certain "political constitution of truth."⁵

Despite the prominence of interest within historiographical narratives of emerging science, interest itself has not attracted sustained scholarly scrutiny within science studies, as Petri Ylikoski has pointed out.⁶ While Ylikoski develops a philosophical concept of interest, we contend that a historical concept of interest is desired. Interest has been deployed to historicize science, but interest itself has not been similarly historicized. Meanwhile, studies of interest and the related "reason of state" are proliferating within the history of political thought and history more broadly. Much more is now known about the finer textures and importance of early modern interest theory than was known when the sociology of science positioned interest at center stage a few decades ago. Integrating such scholarship into the history of science can shift analysis from the "insides" and "outsides" of science toward the co-production of science and society.⁷ Case studies, such as that offered here, can analyze how the precise meanings of interest and related notions fluctuated along with changing concepts and practices of science. In particular, we argue that interest, or that which "is between" (L., *interesse*), served as a medium for connecting polities via scientific diplomacy.

At first glance, Frederick Clodius is an unlikely subject for extrapolating the intersections of scientific diplomacy and interest. In the literature on English scientific circles of the Interregnum, he frequently appears as a dubious Continental adept, variously identified as being of Dutch or German descent, who was involved in Helmontian chymical pursuits between 1652 and 1670.⁸ Within the canon of primary sources that document this milieu (the papers of Hartlib, Boyle, Conway, and Evelyn), Clodius is remarkable only for his multiple disputes with the likes of George Starkey (1628–1665), Kenelm Digby (1603–

⁵ Peter Dear, "From Truth to Disinterestedness in the Seventeenth Century," *Social Studies of Science*, 1992, 22:619–631; Cook, *Matters of Exchange* (cit. n. 2), esp. pp. 45–46; Shapin and Schaffer, *Leviathan and the Air-Pump* (cit. n. 3), esp. Chs. 7, 8; Hunter, *Science and Society in Restoration England* (cit. n. 3); Michael Hunter, *Establishing the New Science: The Experience of the Early Royal Society* (Wolfeboro, N.H.: Boydell, 1989) (Hunter's view is criticized in Robert Stillman, *The New Philosophy and Universal Languages in Seventeenth-Century England: Bacon, Hobbes, and Wilkins* [Lewisburg, Pa.: Bucknell Univ. Press, 1995], p. 312); Larry Stewart, *The Rise of Public Science: Rhetoric, Technology, and Natural Philosophy in Newtonian Britain* (Cambridge: Cambridge Univ. Press, 1992); and Bruno Latour, "The Impact of Science Studies on Political Philosophy," *Science, Technology, and Human Values*, 1991, 16:3–19, on p. 13.

⁶ Petri Ylikoski, "Interests, Folk Psychology, and the Sociology of Scientific Knowledge," *Philosophical Explorations*, 2004, 7:265–279.

⁷ Steven Shapin, "Discipline and Bounding: The History and Sociology of Science as Seen through the Externalism-Internalism Debate," *History of Science*, 1992, 30:333–369; and Sheila Jasanoff, ed., *States of Knowledge: The Co-production of Science and the Social Order* (London: Routledge, 2004).

⁸ See Charles Webster, *The Great Instauration: Science, Medicine, and Reform, 1626–1660* (London: Duckworth, 1974), pp. 302–305; William Newman and Lawrence Principe, *Alchemy Tried in the Fire: Starkey, Boyle, and the Fate of Helmontian Chymistry* (Chicago: Univ. Chicago Press, 2002), pp. 247–250, 257–269; Newman, *Gehennical Fire: The Lives of George Starkey, an American Alchemist in the Scientific Revolution* (Cambridge, Mass.: Harvard Univ. Press, 1994), pp. 59–60, 82–83, 173; and Stephen Clucas, "Clod, Frederick (b. 1625x35, d. in or after 1661)," in *Oxford Dictionary of National Biography* (Oxford: Oxford Univ. Press, 2004). For a sample of the confusion concerning Clodius's origins and career see Marjorie Nicholson and Sarah Hutton, eds., *The Conway Letters*, rev. ed. (Oxford: Clarendon, 1992), p. 94: "a Dutch chemist"; A. Rupert Hall and Marie Boas Hall, eds., *The Correspondence of Henry Oldenburg*, Vol. 1: 1641–1662 (Madison: Univ. Wisconsin Press, 1965), p. 103: "probably a German"; James Crossley, ed., *Diary and Correspondence of John Worthington*, 3 vols. (Manchester: Chetham's Society, 1847–1886), Vol. 1, p. 293: "an eminent Chemist"; and Michael Hunter et al., eds., *The Correspondence of Robert Boyle*, 6 vols. (London: Pickering & Chatto, 2001) (hereafter cited as **Hunter et al., eds., Correspondence of Robert Boyle**), Vol. 1, p. 507: "a kind of roving art dealer."

1665), Robert Boyle, Anne Conway (1631–1679), Henry More (1614–1687), and Hartlib himself. The strong opinions of several contemporaries about Clodius—he was “a profess’d adeptus” and pretender “of extraordinary arcana,” according to John Evelyn (1620–1706); “as accurs’d a raskall as ever trod on English ground,” according to Henry More—have manifested within the English-language secondary literature a limited and seemingly indelible impression of Clodius as an irrational braggart, intellectual parasite, and chymical pretender.⁹

Clodius was certainly this, but he was also more. If we look to archivalia not directly concerned with the English scientific milieu, a very different picture of Clodius emerges. Indeed, it demonstrates that his activities in England were largely directed by his patron, Duke Friedrich III of Gottorf-Holstein (1597–1659), in order to further a political relationship between Gottorf and England and to establish a transnational correspondence network for both political and scientific ends.¹⁰ Within the contexts of this mission, Clodius’s activities not only supported Oliver Cromwell’s (1599–1658) idea of a Protestant interest in Europe but also elaborated this interest within the *bona fide* efforts of Dury and Hartlib to unify Protestant churches through scientific and irenic efforts.¹¹

On the basis of a case study of Clodius and his activities in England, we argue that shared interest, rather than gentlemanly disinterest, linked these efforts in precise and traceable ways. Hartlib, Dury, and Clodius, alongside other key figures of scientific communication, including Henry Oldenburg (1619–1677), sought to establish and protect the international “Protestant interest” as part of neutrality negotiations of 1653, undertaken between England and various European polities during the first Anglo–Dutch War. The communication of natural knowledge played a prominent role in this international negotiation, as the archives of Hartlib’s papers in Sheffield and of the Duchy of Schleswig-Holstein in the castle at Gottorf show.

The particular case of London–Gottorf communication and negotiation suggests a more general contention concerning the role of politics in shaping emerging global science. Amid the array of international contributors to new empirical collections of natural knowledge, scientifically inclined political intelligencers, agents, and diplomats have appeared incidental to wider networks of global communication. However, rather than being intellectual collateral to newly scientific ways of viewing the world, global political empiricism arguably can be seen as constitutive of them. A shift from universalist political philosophy to inductive politics based on new, travel-based studies of people, places, and resources preceded and perhaps may be said to include the emergence of scientific empiricism.¹² At a time when science did not yet exist as a coherent category, networks of negotiation gave funding, impetus, and shape to networks of communication. The

⁹ William Bray, ed., *Diary and Correspondence of John Evelyn*, 4 vols., Vol. 3 (London, 1850), p. 391; and Nicholson and Hutton, eds., *Conway Letters*, pp. 88, 94–95.

¹⁰ On Friedrich III see Jan Drees, “‘Virtutis gloria merces’: Herzog Friedrich III. von Schleswig-Holstein-Gottorf (1597–1659) und sein Streben nach Ruhm und Anerkennung durch die Förderung der Wissenschaften und der Künste,” in *Die Blumenbücher des Hans Simon Holtzbecker und Hamburgs Lustgärten*, ed. Dietrich Rot (Kelttern-Weiler: Goecke & Evers, 2003), pp. 89–114.

¹¹ Jacob Bowman, *The Protestant Interest in Cromwell’s Foreign Relations* (Heidelberg: Winter, 1900), p. 11.

¹² Joan Pau Rubiés, “Christianity and Civilization in Sixteenth-Century Ethnological Discourse,” in *Shifting Cultures: Interaction and Discourse in the Expansion of Europe*, ed. Henriette Bugge and Rubiés (Münster: LIT, 1995), pp. 35–60; Justin Stagl, *A History of Curiosity: The Theory of Travel, 1500–1800* (Chur: Harwood Academic, 1995); Barbara Shapiro, “Empiricism and English Political Thought, 1550–1720,” *Eighteenth-Century Thought*, 2003, 1:1–33; and Arndt Brendecke, *Imperium und Empirie: Funktionen des Wissens in der spanischen Kolonialherrschaft* (Köln: Böhlau, 2009).

political provenance of such centers of accumulation might appear to run counter to the essentially disinterested nature of science. However, the claim to the disinterestedness of natural knowledge, made most emphatically in Restoration England, can itself be seen as an artifact of political contingencies. In particular, the political valence placed on useful knowledge during the Interregnum compelled Restoration gentlemen philosophers to disown the interested nature of natural knowledge. Frederick Clodius was precisely the sort of controversial Interregnum figure whose legacy as a political negotiator and scientific communicator would become obscure during the Restoration.

THE LIFE OF A POLITICO-SCIENTIFIC INTELLIGENCER

Because of the obscurity into which Clodius has descended, we begin with a biographical sketch of our protagonist. This account draws on both known and newly discovered sources and seeks to situate Clodius's life in contexts outside of his Helmontian chymical pursuits.

Friedrich, or Frederick, Clodius was born in Gottorf, Holstein, in summer 1629, the son of *Hofgartner* (court gardener) Johannes Clodius (1584–1660).¹³ The Clodius (also Kloth, Klothe, Klode, etc.) family was descended from the patriarch Matthias Kloth of Antwerp, a Lutheran forced to flee the Netherlands during the Reformation on account of his beliefs.¹⁴ One of Matthias's twelve sons, Petrus, settled initially in Wolmirstedt, near Magdeburg, before taking up a position in 1606 as *Hofgartner* to Duke Ernst of Holstein-Schaumburg. His son Johannes, Frederick's father, traveled widely for many years, engaged in the study of botanical practice in the Germanies, France, the Netherlands, England, Spain, and especially Italy, where he spent eight years in the gardens of Florence and Rome. In 1620 Johannes returned to Germany and was appointed chief gardener for Duke Ernst of Holstein-Schaumburg (1569–1622); there he married Agneta Hoffkuntz (d. 1671). In June 1625 Johannes was appointed *Hofgartner* to Duke Friedrich III in Gottorf, a position he would hold until his death.

One of Johannes's six children, Frederick was probably educated at the Gottorf Latin school before matriculating at Rostock University in May 1647, shortly before his eighteenth birthday, in order to study medicine. Frederick was intelligent and trustworthy, and soon after completing his studies he was employed by Duke Friedrich III in roving about Europe in order to, as Boyle later reported, "purchase Rarities at any rate."¹⁵ Above all, however, Clodius's travels appear to have been intended to further chymical interests

¹³ Clodius's birthdate is fixed by a gift from Duke Friedrich III to his father on the occasion of his baptism. Landesarchiv Schleswig-Holstein, Schleswig (hereafter cited as **Landesarchiv Schleswig-Holstein**), 7/2268, fol. 76v (23 Aug. 1629): "Johann Clodio Gartnern, welcher F.G. zu Gevattern underthenig erbeten, zur Gevatterngabe in Vier Rosennobeln, So durch georg von Buchwolden überantwortet worden, verehret. 16 Rthlr." Cf. Michael Paarmann, "Gottorfer Gartenkunst: Der alte Garten" (Ph.D. diss., Kiel Univ., 1986), Appendix, no. 71 (the appendix to Paarmann's dissertation enumerates many transcribed original documents; they will be referred to parenthetically by number in these notes).

¹⁴ The sketch of the Clodius family in this paragraph draws on M. G. H. Burchardt, *Flora illachrimans funeri viri Praestantissimi Dn. Joh. Clodii, Serenis. Hols. Ducis Hortorum Gottorp. Magistri* ([Schleswig], 1663); Paarmann, "Gottorfer Gartenkunst," pp. 105–109; and Angelika Linnemayr, "Zur Geschichte der Familie Clodi," *Jahrbuch des Oberösterreichischen Musealvereins Gesellschaft für Landeskunde*, 1992, 137:105–113.

¹⁵ Adolph Hofmeister, *Die Matrikel der Universität Rostock III (Ost. 1611–Mich. 1694)* (Rostock, 1895), p. 146; and Robert Boyle, "Usefulness of Natural Philosophy (ca. 1663)," in *The Works of Robert Boyle*, ed. Michael Hunter and Edward B. Davis, 14 vols., Vol. 3 (London: Pickering & Chatto, 1999–2000), p. 341. The words "at any rate" do not appear in the printed version but are present in Boyle's original manuscript of the text: Robert Boyle Papers, Royal Society, London (hereafter cited as **Boyle Papers**), RB 1/16/6, fol. 213r.

in Gottorf. In March 1651 the Duke granted Frederick 100 Reichsthaler so that he could “investigate various sciences of Chymia.”¹⁶ Shortly thereafter, Clodius received an additional sum of 50 Reichsthaler to travel to the United Provinces, where, on 4 July 1651, having just turned twenty-three, he matriculated at the University of Leiden.¹⁷

Clodius did not remain long in Leiden. Six months later, he was lodging in Amsterdam and applying himself to the directions of his patron by establishing contact with numerous chymical figures in England, Ireland, Scotland, the Netherlands, and the Germanies.¹⁸ While in pursuit of Paracelsus’s (1493–1541) botanical manuscripts, one of the first networks he chanced across was that of Samuel Hartlib. The initial contact was, as William Newman and Lawrence Principe have suggested, probably through Johann Moriaen (ca. 1591–1668), who knew Friedrich III’s multitiered librarian Adam Olearius (1599–1671). By late 1651, Clodius was in direct contact with other members of Hartlib’s networks, including John Pell (1611–1685).¹⁹

Hartlib’s diary, the *Ephemerides*, suggests that in 1651 and 1652 Clodius quickly established himself as an indispensable source of knowledge on numerous matters within the intellectual ambit of the London intelligencer. Hartlib recorded Clodius’s opinions on topics from chess to librarianship, monadism to pansophy, botany to Helmontian chymistry, from methods for curing baldness to a Holsatian technique for breeding scorpions. Hartlib appreciated that Clodius shared his knowledge willingly, rather unlike the secretive George Starkey, who was at this point Hartlib’s closest chymical collaborator.²⁰

Equally significant for Hartlib’s aspirations, however, was that Clodius possessed an impressive set of contacts, scientific and political, who could reliably further his reforming plans. Clodius mixed easily with Catholics and Protestants and knew a host of Continental chymists, including Wendelin Sibyllista (1597–1677), personal physician to Duke August of Braunschweig-Wolfenbüttel (1579–1666), and Francis Mercury van Helmont (1614–1699).²¹ Moreover, his patron was Duke Friedrich III. The Duke commanded respect within Hartlib’s networks, for in the 1630s he was one of the foremost supporters of the abandoned utopian project, Antilia, that Hartlib had pursued intensely.²² By the time Clodius arrived in London in late 1651 or early 1652, therefore, he was already a trusted personality who was fully formed in accordance with Hartlib’s ethical expectations as an intelligencer, backed by one of the noblemen in Europe most sympathetic to Hartlib’s aims.

With the express interest of the Duke, one of Clodius’s earliest acts in London was to

¹⁶ Landesarchiv Schleswig-Holstein 7/2308, fol. 75r (Rentkammer-Rechnung, Mar. 1651): “Johanni Clodio, . . . welche I. F. Durchl. Deßen Sohn Friderico Clodio zu erkundigung verschiedener Wißenschafft in Chymia zehlehn laßen 100 Rthlr.” (Cf. Paarmann no. 535, where “Chymia” is mistranscribed “Bhymia.”)

¹⁷ Landesarchiv Schleswig-Holstein 7/2308, fol. 79r: “Friderico Clodio zu seiner vorhabenden Reise . . . gezahlet 50 Rthlr” (cf. Paarmann no. 537); and *Album studiosorum academiae Lugduno Bataviae, MDLXXV–MDCCCLXXV* (The Hague, 1875), p. 438.

¹⁸ Clodius received additional funding from Gottorf, mediated through Adam Olearius, for his mission. See Landesarchiv Schleswig-Holstein 7/2310, fol. 82v (22 July 1651): “Adam Oleario, Bibliothecario . . . erstattet, die er zu zwo unterschiedenen Zeiten auff gehabten Fürstl. Befehl an Fridericum Clodium nacher Hollandt übermacht hat 90 Rthlr.” See also Samuel Hartlib Papers, Sheffield University Library (hereafter cited as **Hartlib Papers**), 28/2/27b (*Ephemerides* [Hartlib’s diary], Jan.–Oct. 1652).

¹⁹ Hartlib Papers 28/2/19a (*Ephemerides*, 1651): “Mr. Pell imparted a Chym. MS. De Vitriolo to Mr. Clodius.”

²⁰ Hartlib Papers 28/2/21b (*Ephemerides*, 1651); and Newman and Principe, *Alchemy Tried in the Fire* (cit. n. 8), p. 225.

²¹ Hartlib Papers 28/2/28b (*Ephemerides*, 1652).

²² See John Dury to Samuel Hartlib, 20 Aug. 1634, Hartlib Papers 9/1/34b–35a; and Donald R. Dickson, *The Tessera of Antilia: Utopian Brotherhoods and Secret Societies in the Early Seventeenth Century* (Boston: Brill, 1998), pp. 117, 126–128, 141–143.

cosign with Hartlib and Dury a *Christianae Societatis Pactum* [Pact for a Christian Society], instituted 18 August 1652, in which the three men undertook to initiate a variety of strategies to forward a joint project of social reform. While in the past this document has tended to be read as part of the extrapolitical interest in establishing new Christian brotherhoods, a closer look reveals that it was fully implicated in a political context.²³ Throughout the pact, the three stated their intention to obtain through collaboration things useful to the public (“quod conjunctis operis deinceps re publico utiles procurare”). The great secrets that might be revealed to them, God willing, were not to be distributed to those who might use them to serve their own greed and tyranny. Useful knowledge was, however, to be communicated to the Gottorf court:

Matters useful to the state (whether for the implantation and propagation of virtues in the souls of men, or for the expelling of diseases; or for the lessening of public crimes, or for the alleviation of poverty and the promotion of industry in general) that seem worthy of being communicated to rulers and leaders of commonwealths, shall be communicated to the Duke of Holstein firstly and before [all] others, and only through Master Clodius; whereas those matters which are to be brought to the English Commonwealth, shall be communicated only through Master Hartlib; and those which are to be offered to the Protestant churches, only through Master Dury.²⁴

Within this passage, Clodius’s presence in England as an agent of the Duke—which he would shortly have the opportunity to advance during the treaty negotiations of 1653, to be discussed below—is made abundantly clear, as is the apparent centrality of Gottorf for support and dissemination of Hartlibian schemes more broadly. The pact would later become a touchstone in communication among the signees, thus explicitly linking natural knowledge to knowledge considered useful to their respective sociopolitical causes.²⁵ In a plan for further spiritual reform that he dedicated to Hartlib and Clodius, Dury again referred to their union through “the bond of sacred Christian communication” and specified the role natural knowledge played in his plan.²⁶

²³ Regarding the pact see Hartlib Papers 7/110/1a; and George H. Turnbull, *Hartlib, Dury, Comenius: Gleanings from Hartlib’s Papers* (London: Liverpool Univ. Press, 1947), pp. 121–123. For earlier readings of this document see Dickson, *Tessera of Antilia*, p. 206; and J. W. Montgomery, *Cross and Crucible: Johann Valentin Andreae, 1586–1654* (Dordrecht: Nijhoff, 1973), p. 222.

²⁴ Hartlib Papers 7/110/1a: “Res publicò utiles sive ad virtutes hominum animis implantandas et propagandas sive ad morbos pellendos; sive ad mala publica evitanda, aut ad paupertatem levandam et industriam in communi promovendam quae magnatibus et rerum publicarum rectoribus communicandae videbuntur: primo et ante alios Duci Holsatiae et non nisi per Dom. Clodium, quae vero Reip. Angliae insinuabuntur non nisi per Dom. Hartlibium; et quae ecclesiis offeruntur Evangelicis non nisi per Dom: Duraeum communicabuntur.”

²⁵ See Dury to Frederick Clodius, 13 May 1655, Hartlib Papers 29/1/1a, where Dury accompanies a recipe for *aqua mercurii* with a reminder that they ought to communicate “when common pursuits can undertake some addition to the promotion of the public good” (“quando studia communia ad publici boni promotionem additamentum aliquod accipere possunt”), according to the friendship they had contracted in fear of God (“nostrae in timore Dei contractae amicitiae”). He further suggests that a method to extract mercury from lead might prove useful in “Swedish mines.”

²⁶ “Restaurationis Universalis Cynosura & Amussis,” Boyle Papers, RB/1/11/12, fols. 285r–292v; and Hartlib Papers 17/19/1/1a–8b. Here Hartlib and Clodius are “Sanctae communicationis vinculo Christiano sibi conjunctos.” Dury’s plan was “to purge both spiritual and natural sciences, and to reform both Christian and civil societies” (“Scientiarum tam spiritualium quàm Naturalium spineta repurgare, et societates tam Christianas quàm Christianae . . . constituere atque reformare”) (17/19/1/2a). “If we desire to accommodate our work to God, we must use those means ordained by Him, and we should adhere to the method of natural things, which He endowed” (“Nam si operam nostram Deo accommodare cupimus, necesse est ut mediis ab ipso ordinatis utamur, et methodum naturae rerum, quam ipse iis indidit, consentaneam adhibeamus”) (17/19/1/6a). The universities should avoid scholastic disputations of philosophy and theology and instead offer mystical and practical

The pact agreement would soon be elaborated in other ways. In summer 1653 Clodius married Hartlib's daughter Mary (d. ca. 1668), an "alliance with good Mr. Hartlib" that Robert Boyle could not "but looke upon . . . as an Act of [Hartlib's] Grand Designe to oblige this Nation."²⁷ That same year Clodius was appointed by Friedrich III as his extramural botanist, as one part of an elaborate botanical-chymical mission that further cemented his agency for Gottorf. (See Appendix A.) In 1654, in accordance with the *Pactum*, Clodius corresponded with Benjamin Worsley (1618–1677) and George Starkey and established a laboratory in Hartlib's back kitchen, the *Laboratorium Clodianum*. As the remarkable prospectus for this laboratory communicates, it was here that Clodius hoped to reform the whole practice of medicine through mutual consultation with other experts. He would wage war on disease, the better to serve humanity as a whole.²⁸

Although Boyle, Digby, and Hartlib quickly fell under Clodius's spell, he ran afoul of others, such as Starkey, Worsley, and Henry More.²⁹ A flashpoint occurred in late 1653, when Clodius was ministering to Anne Conway, whose persistent migraines he treated.³⁰ Clodius's medication was so noisome, or ineffective, that he was accused of "couzening" Conway. More, in particular, was incensed at this "foul villainy" and charged that Clodius knew that "his Physick can do nothing." Other patients, however, fared better. In London, Clodius treated members of Hartlib's and Dury's families, as well as several minor nobles. His foremost patient was the Cheshire nobleman William Brereton (1631–1680), who trusted Clodius alone to treat his palsy.³¹

Throughout this period, Clodius did not neglect his responsibilities to Gottorf. Receipts preserved in Schleswig detail numerous incoming communications from Clodius.³² Clodius corresponded regularly not only with chymical luminaries, but also with political figures, such as the Transylvanian ambassador Constantin Schaum (d. 1662), the Swede Bengt Skytte (1614–1683), and the Brandenburg diplomat Friedrich Schlezer (ca. 1610–1673). In 1656 he briefly considered returning to Holstein, having been offered "a situation of the sort that one rarely meets with" at the court.³³ This position, however, never materialized.

theology, as well as useful and fruitful lessons of human sciences. "Inani Philosophia et Theologiae scholasticae . . . liberentur; & ad mysticae practicaeque Theologiae stadium . . . traducantur illorum cogitationes; et ut in docendis cum fructu . . . humanarum scientiarum utilibus praeceptis . . . exerceantur" (17/19/17a).

²⁷ Robert Boyle to Clodius, 27 Sept. [1653], in *Correspondence of Robert Boyle*, ed. Hunter *et al.*, Vol. 1, pp. 148–150.

²⁸ Hartlib Papers 16/1/79a–80b.

²⁹ Clodius's closeness to Digby would result in Pierre Borel's *A New Treatise Proving a Multiplicity of Worlds*, trans. D. Shashott (London, 1658), being issued with a dedication to Clodius from its translator, which praised Clodius's "worthiness, wisdom and deep Learning." For views less hospitable to Clodius see Thomas Leng, *Benjamin Worsley (1618–1677): Trade, Interest, and the Spirit in Revolutionary England* (London: Royal Historical Society, 2008), pp. 96, 99–101, 108–109, 119–120; and Newman and Principe, *Alchemy Tried in the Fire* (cit. n. 8), pp. 260–261.

³⁰ For the following see Nicholson and Hutton, eds., *Conway Letters* (cit. n. 8), pp. 88–91, 94–97, 102, 104–106, 115; and Newman and Principe, *Alchemy Tried in the Fire*, pp. 260–261.

³¹ For More's complaint see Henry More to Anne Conway, 7 June 1654, in *Conway Letters*, ed. Nicholson and Hutton, p. 102. Regarding other patients who were satisfied with Clodius's treatments see Hartlib Papers 49/12/1a–2b, 26/82a–b, 29/8/8a, 42/8/1a–3b. On his treatment of Brereton see Hartlib Papers 29/5/32b; and Crossley, ed., *Diary and Correspondence of John Worthington* (cit. n. 8), Vol. 1, pp. 293, 304.

³² Landesarchiv Schleswig-Holstein 7/2315 (Beilage), fol. 240r, lists for 1653 "Brieffe auß Dunkirchen von Clodius . . . Ein nach London an [Frederick] Clodio . . . Von London ein groß packet an [Johannes] Clodio." (Cf. Paarmann, no. 757.)

³³ Clodius to Boyle, 3 Mar. 1656, in *Correspondence of Robert Boyle*, ed. Hunter *et al.*, Vol. 1, pp. 195–198. Regarding Clodius's wider correspondence see Clodius to Constantin Schaum, 20 Jul. [1654?], Hartlib Papers

In July 1658 Clodius was joined in London by his brother Johann, Jr. (b. ca. 1636), who had been in contact with Hartlib and Johann Moriaen since at least October 1657 on the subject of a universal language. In 1654, under Duke Friedrich's patronage, Johann had matriculated at the University of Helmstedt, where in early 1658 he had completed a dissertation on politics. Dwelling in his brother's large house at Axe Yard, Westminster, Johann shared with Hartlib the latest gossip concerning chymical happenings in Gottorf and quickly made Boyle's acquaintance. It appears that "young Clodius" spent much of his time "in the country," learning English and probably collecting botanical or other specimens on behalf of the Duke, like his older brother previously.³⁴ In 1659 Johann was still in England, where he translated two German chymical works for Boyle's benefit.³⁵ His further movements are, at present, unknown.

Just as Johann Clodius brought his youthful zeal to London, Frederick flagged under a recurrent melancholia, repeatedly finding himself "undone," as Hartlib put it, and "in a labyrinth." In this state, Clodius managed to alienate both friends and family. In a 1661 letter to Hartlib, John Dury pointedly lamented Clodius's "various misdemeanours," the consequences of which, if they continued unchecked, could be grave: "I am more sorry for his sake than for the wrong he doth to you, for by that kind of comportment he makes himself incapable of the love of honest friends who will not be able or willing to trust or assist him."³⁶

Ultimately, Dury's fears were realized, and Clodius indeed alienated himself from numerous friends, including his closest allies Digby and Boyle. After Hartlib's death in March 1662, Clodius was reduced to a state of penury. Unable to return to Gottorf after the death of Duke Friedrich in August 1659, and of his father a year later, Clodius wrote a pathetic letter to Boyle in December 1663, begging to be helped urgently from his "chaotic troubles and misfortunes." By this time, Clodius had moved from Axe Yard to Brompton, Middlesex, his troubles compounded by news that his wife Mary was pregnant.³⁷ Whether Boyle acquiesced is unknown, but around the summer of 1664 Clodius's fortunes would change following a new commission from an unexpected source.

Since at least 1658, William Brereton, a founding member of the Royal Society, had expressed a keen interest in Hartlib's manifold plans to assist England's poor and had proposed the renovation of his father's holdings in Cheshire for just such a purpose. Brereton inherited his father's title and lands after the latter's death in April 1664 and immediately set about attempting to realize his dreams. He issued a flurry of invitations

26/53a; and Jane Finucane, "The Invisible Virtuoso: Bengt Skytte and the Royal Society," *History of Universities*, 2012, 26:117–163, esp. p. 127.

³⁴ Hartlib to Boyle, 10 May 1659, 20 May 1659, in *Correspondence of Robert Boyle*, ed. Hunter et al., Vol. 1, pp. 343–345, 350–351. Regarding Johann's contacts with Hartlib and Moriaen on the subject of a universal language see Johann Moriaen to Hartlib, 19 Oct. 1657, 30 Nov. 1657, Hartlib Papers 42/2/24a, 42/2/26b. On his matriculation at Helmstedt see Landesarchiv Schleswig-Holstein 7/2316, fol. 94r; and Werner Hillebrand, ed., *Der Matrikel der Universität Helmstedt*, Vol. 2: 1636–1685 (Hildesheim: Lex, 1981), p. 136. Regarding the gossip with Hartlib and acquaintance with Boyle see Hartlib Papers 29/7/12a–b (*Ephemerides*, 1658).

³⁵ As the editors of Boyle's correspondence suggest, the tracts in question were probably the two volumes of the second edition of Johann Grasshoff's *Ein philosophischer und chemischer Tractat genant der kleine Baur . . .* (Strasbourg: Zetzner, 1619; rpt., 1626, 1658).

³⁶ Hartlib to Boyle, 7 Jan. 1658, 2 Feb. 1658, in *Correspondence of Robert Boyle*, ed. Hunter et al., Vol. 1, pp. 247–254; and Dury to Hartlib, 12 Aug. 1661, Hartlib Papers 4/4/30a.

³⁷ Clodius to Boyle, 22 Dec. 1663, in *Correspondence of Robert Boyle*, ed. Hunter et al., Vol. 2, pp. 229–230. Daugher Catherine (1664–1665) was baptized at St. Mary Abbots, Kensington, 9 Mar. 1663/1664; see F. N. Macnamara and A. Story-Maskelyne, eds., *The Parish Register of Kensington, Middlesex, 1539–1675* (London: Harleian Society, 1890), p. 47. Clodius's first three children, born in 1655, 1657, and 1658, were delivered stillborn or died in infancy.

to friends, including Boyle, John Pell, John Worthington (1618–1671), and Clodius, to join him at Brereton Hall in Cheshire and accept lifelong appointments as instigators of a utopian “design of Christian Societies” that would be based there.³⁸ While Boyle never accepted, Pell, Worthington, and Clodius all traveled to Brereton Hall. There they lived, with their families, for a brief period of peace and industry, before Brereton’s crippling debts, which he had inherited along with his father’s estate, eroded the company’s goodwill. A series of acrimonious departures followed. As William Welden informed the chymical diarist John Ward (1629–1681), Clodius was apparently the first to quit Brereton, in or before September 1667: “My L[o]rd Bruerton of Cheshire was Clodius his scholl[ar] allso and yt hee goes on very vigorously with Chemistry: That hee took Clodius downe with him into ye Country and setled some thing on him for life, but Clodius fell out with him and so left him and wanders; my L[o]rd keeps his wife and 2 Children. His wife was Hartlibs daughter yt wrote of cultivating the grain.”³⁹

Whence did Clodius wander? Still young—only thirty-eight—he must have weighed his options carefully, with a return to London a very real possibility. The next mention we find of him, however, is on 2 April 1669 in the village church of Pontesbury, Shropshire, where he wed one Elizabeth Adams of Longden (1643–1712).⁴⁰ Shortly after departing Brereton, Clodius’s wife Mary must have died, leaving him with responsibility for his two daughters, Charlotte (before 1668–after 1699) and Margaret (d. 1679).⁴¹ As a result of this union Clodius chose to settle in Shrewsbury, Shropshire. Old preoccupations, however, remained. In 1670 he contacted Boyle, announcing his intention to dedicate his collected chymical works to him—while also complaining of the extreme poverty in which he and his family found themselves.⁴²

This poverty did not long endure. By 1672 Clodius was well established in Shrewsbury as a physician and dwelt in a house taxed at eight hearths—as large as his former Axe Yard residence.⁴³ Subsequently, Clodius thrived on noble estates in Cheshire and Shropshire.⁴⁴ In 1679 his wife’s cousin William Adams (d. 1716) secured him an ongoing appointment as botanist and physician to the Cholmondeleys of Cholmondeley in Cheshire.⁴⁵ In 1681 Clodius was paid “very considerably” by the botanist Edward Lloyd

³⁸ This was Worthington’s term. See Crossley, ed., *Diary and Correspondence of John Worthington* (cit. n. 8), Vol. 2, p. 228.

³⁹ Folger Shakespeare Library, Washington, D.C., MS v.a.296, fol. 1r.

⁴⁰ W. G. D. Fletcher, *Shropshire Parish Registers, Diocese of Hereford* ([Shrewsbury]: Shropshire Parish Register Society, 1909), Vol. 12, pp. 143, 184; and Fletcher, *Shropshire Parish Registers, Diocese of Lichfield* ([Shrewsbury]: Shropshire Parish Register Society, 1916), Vol. 16, p. 884.

⁴¹ On Charlotte see Lichfield Record Office, Lichfield (hereafter cited as **Lichfield Record Office**), B/C/11, fol. 2r; on Margaret see Fletcher, *Shropshire Parish Registers, Diocese of Lichfield*, Vol. 16, p. 735. Catherine was buried in Brereton on 8 Feb. 1664/1665: Cheshire Archives, Chester, P 138/1/2.

⁴² The original of 22 Mar. 1670 is lost but was summarized by Thomas Birch. See Hunter *et al.*, eds., *Correspondence of Robert Boyle*, Vol. 4, p. 172.

⁴³ *The Shropshire Hearth-Tax Roll of 1672* (Shrewsbury: Shropshire Archaeological and Parish Register Society, 1949), p. 23. On Clodius’s Axe Yard dwelling see Robert Latham, ed., *The Diary of Samuel Pepys*, 11 vols., Vol. 10 (London: Bell & Hyman, 1983), p. 68.

⁴⁴ Further examples of Clodius’s activities are in Shropshire Archives, Shrewsbury, 3365/275–279; Fletcher, *Shropshire Parish Registers, Diocese of Lichfield* (cit. n. 40), Vol. 15, pp. 370 (christening of Frederick, Jr., 25 Jan. 1670), 393 (christening of Francis, 8 Feb. 1671); and Richard Gough, *Antiquities and Memoirs of the Parish of Myddle* (Shrewsbury, [1875]), p. 60.

⁴⁵ Edward Lloyd to William Adams, 25 June 1681, MS Sweeny Hall A7, p. 52, National Library of Wales, Aberystwyth (hereafter cited as **National Library of Wales**). We thank Brynley F. Roberts for kindly identifying and examining the material in Aberystwyth on our behalf. Adams’s correspondence in Cheshire Archives, Chester, DCH/K/3/1–20, may shed further light on Clodius’s circumstances after 1679.

(1635–1681), father of the second keeper of the Ashmolean, Edward Lhywd (ca. 1660–1709), to undertake botanical and chymical experiments on his Llanforda estate.⁴⁶

By 1699, however, as age and Helmontian medicines took their toll, Clodius had descended into a “crazy & decayed State of health.” He was buried at St. Chad’s, Shrewsbury, on 26 February 1702.⁴⁷ In his will, Clodius left his “Manuscript Book of Receipts, being in ffolio & containing about two Hundred twenty & two pages, together wth my Picture,” to his son Frederick, Jr. (1670–1742), who soon after emigrated to Maryland.⁴⁸ The rest of his estate, bequeathed to his wife, was meager, the inventory of his possessions amounting to £16.19s; the greatest value attached to “the Study of books & other things therein.”⁴⁹

DUKE FRIEDRICH III OF HOLSTEIN-GOTTORF AND HIS INTELLIGENCERS

The career that ended in obscurity in Shrewsbury began through the patronage of an energetically state-building duke. Duke Friedrich III of Holstein-Gottorf had good reasons to invest in the intelligencers and ambassadors he dispatched around Europe and beyond. The Duchy of Schleswig-Holstein straddled the North and Baltic Seas, intervening between Denmark and the rest of the German lands and readily accessible to Northeastern Europe, Scandinavia, the Netherlands, and England. This strategic location both eased communication and saddled the land with a variety of political overlords. Schleswig and Holstein were ruled simultaneously by the dukes in Gottorf and by the kings of Denmark, which meant that the dukes were always on the lookout for other political allies to bolster their weak position. Meanwhile, sailors’ towns such as Husum were difficult for anyone to control, and all surrounding principalities attempted to increase their influence in wealthy Hansa League cities such as Hamburg.

Duke Friedrich III always had to negotiate with a variety of other polities, especially as he shepherded his small and vulnerable state through several periods of hostilities during the Thirty Years’ War (in particular the years 1625–1629 and 1645–1648). The Duke sought new allies far and wide. He sent ambassadors to Russia and even to Persia. He initiated peace negotiations with Oliver Cromwell in England in 1653. He married his

⁴⁶ See Brynley F. Roberts, *Edward Lhywd: The Making of a Scientist* (Cardiff: Univ. Wales Press, 1980), pp. 13, 15; drafts of two letters from Lloyd to Clodius are extant in MS Brogyntyn PEF 1/2 (30 Dec. 1680) and MS Sweeny Hall A7, p. 45 (undated but early 1681), National Library of Wales. Some experiments and a list of botanical-chymical compounds “made or refined by Dr Clodius at Llanvorda anno 1681” are in Lloyd’s notebook: British Library, London, MS Add 15070, fols. 1v, 9r, 10r.

⁴⁷ Lichfield Record Office, B/C/11, fol. 2r; and Fletcher, *Shropshire Parish Registers, Diocese of Lichfield* (cit. n. 40), Vol. 16, p. 829.

⁴⁸ Lichfield Record Office, B/C/11, fol. 2r. Frederick, Jr., arrived in Maryland before March 1703; in June 1704 he purchased 410 acres of land in Mattapany Hundred, Prince George’s County, where he became justice of the peace (1705–1718) and county coroner (1714–1718). He sold this land in January 1719 and returned to England. After living in Shrewsbury in 1722, he moved to Hatfield, Essex, before 1737, where he died. See Lois Green Carr, *County Government in Maryland, 1689–1709*, 2 vols., Vol. 2 (New York: Garland, 1987), pp. 316–317; K. Ledward, ed., *Journal of the Commissioners for Trade and Plantations*, 14 vols., Vol. 4 (London: HM Stationery Office, 1920–1938), p. 99; Thomas Auden, “The Church and Parish of St. Juliana in Salop,” *Transactions of the Shropshire Archaeological and Natural History Society*, 1886, 10:339; Shropshire Archives, Shrewsbury, 2922/12/1; Hertfordshire Archives, Hertford, DE/B664/29552; and National Archives, Kew (hereafter cited as **National Archives**), Prob 11/71, fol. 363r.

⁴⁹ Lichfield Record Office, B/C/11, fol. 3r. “A true & perfect In[vent]ory of the Goods & Ch[at]ells of Mr Frederick Clodius Physician deceas’d taken May 11. 1702.” The study was valued at £6.10s.

daughter Hedwig-Eleonora (1636–1715) to Charles X Gustav of Sweden (1622–1660) in 1654.⁵⁰

In addition to forging political alliances, the Duke sought to compete with his neighbors through the energetic patronage supported by the political theory of the time. The Husum lawyer Hermann Lather (1583–1640) dedicated a groundbreaking work of political economy to the young Duke in 1618. Lather's *De censu* outlined the political utility of the patronage of arts, new inventions, manufactures, urbanism, and even the collection of seemingly useless *Kunstammer* objects.⁵¹ Friedrich would follow such policies throughout his lengthy career.

As warfare reshuffled princely collections around Europe, heads of small continental principalities attempted to aid the recovery of their lands through intensive rebuilding and collecting, Duke Friedrich among them.⁵² Imitating Glückstadt, the town founded in Holstein by Christian IV of Denmark (1577–1648), Friedrich founded his own Dutch-style town, Friedrichstadt, where religious tolerance encouraged the immigration of craftsmen and merchants, including Sephardi Jews from the Netherlands. In order to speed the fame and prosperity of Friedrichstadt, during the 1630s the Duke funded a series of costly diplomatic envoys, first to Muscovy in 1634–1635 and then to the court of Shah Safi (1611–1642) in Persia in 1635–1639, with the express aim of establishing a silk road ultimately reaching from Holstein to China.⁵³

While this expansive vision never came to fruition, the ample foreign commercial traffic through Friedrichstadt nevertheless supplied the gardens at Gottorf with Dutch varieties under the aegis of the *Hofgartner*, Johannes Clodius. Clodius also oversaw the new Persian garden that displayed the Duke's reach around the world.⁵⁴ Within it, the Duke constructed a marvelous planetarium, widely celebrated abroad. He purchased the famed collections of Bernhard Paludanus (1550–1633) at Enkhuizen for his *Kunstammer* and, under the auspices of the well-traveled Adam Olearius, expanded his library.⁵⁵

Hartlib was well informed of the Duke's impressive patronage and collecting. He

⁵⁰ See further Jörg Rathjen, "Friedrich III. Gottorf im Räderwerk der nordeuropäischen Mächtepolitik," in *Gottorf im Glanz des Barock: Kunst und Kultur am schleswiger Hof, 1544–1713*, ed. Heinz Spielmann and Jan Drees, 4 vols., Vol. 1 (Schleswig: Schleswig-Holsteinisches Landesmuseum, 1997), pp. 29–34.

⁵¹ Herman Lather, *De censu, hoc est quo medio, jure, arte & studio status cuiusque regni, reipub. vel civitatis censum suum seu redditus, non nisi legitime augere possit, ubi & de illegitimis modis passim refellendi animo tractatus nomico-politicus* (Frankfurt, 1618; rpt., 1651, 1668), pp. 973–997.

⁵² Hugh Trevor-Roper, *The Plunder of the Arts in the Seventeenth Century* (London: Thames & Hudson, 1970); and Jill Bepler, "Early Modern German Libraries and Collections," in *Early Modern German Literature, 1350–1700*, ed. Max Reinhart (Rochester, N.Y.: Camden, 2007), pp. 699–736. On the political motivations of smaller states to patronize useful knowledge, including natural knowledge, see Howard Hotson, *Commonplace Learning: Ramism and Its German Ramifications, 1543–1630* (New York: Oxford Univ. Press, 2007).

⁵³ Adam Olearius, *Travels of the Ambassadors Sent by Frederic, Duke of Holstein, to the Great Duke of Muscovy and the King of Persia*, trans. John Davies (London, 1662; rpt., 1669).

⁵⁴ In late 1653, Johannes Clodius communicated to Frederick a "Persian" method for preparing garlic. See Hartlib Papers 26/34a–b, 68/3/14a–b.

⁵⁵ On the planetarium see Nathaniel Wanley, *The Wonders of the Little World; or, A General History of Man in Six Books* (London, 1673), pp. 225–226. Hartlib preserved descriptions in British Library, London, MS Sloane 651, fol. 181r–v, MS Sloane 652, fol. 171r–v; and Hartlib Papers 68/3/17a–b. For the purchase of Paludanus's collection see Landesarchiv Schleswig-Holstein 7/6537; Erik de Jong, "Of Plants and Gardeners, Prints and Books," in *Baroque Garden Cultures: Emulation, Sublimation, Subversion*, ed. Michel Conan (Washington, D.C.: Dumbarton Oaks, 2005), pp. 37–84; Helga de Cuveland, *Der Gottorfer Codex von Hans Simon Holtzbecker* (Worms: Werner, 1989); Hermann Kellenbenz, *Schleswig in der Gottorfer Zeit, 1544–1711* (Schleswig: Schleswiger Dr. u. Verl.-Haus, 1985); and Ernst Schlee, ed., *Gottorfer Kultur im Jahrhundert der Universitätsgründung: Kulturgeschichtliche Denkmäler und Zeugnisse des 17. Jahrhunderts aus der Sphäre der Herzöge von Schleswig-Holstein-Gottorf* (Flensburg: Wolff, 1965). See also Ulrich Kuder, ed., *Die Bibliothek der Gottorfer Herzöge* (Nordhausen: Bautz, 2008).

counted among the Duke's works his planned "Persian Journey" to be written by Olearius, a "Persian Chronologie," the publishing of Helmont's manuscripts, and a very unusual botanical work. This last would include not only appropriate astrological signatures for each plant but also microscopic analyses. Each plant would be depicted after life and to scale according to the "huge stately book" in the Duke's library composed by his flower painter. Hartlib was referring to the now-celebrated "Gottorfer Codex," by Hans Simon Holtzbecker, currently held in the National Gallery of Denmark.⁵⁶

Hartlib also described the "Repositories" of the Duke's library as "very stately." The Duke hired two individuals to make "daily Indices" of "all the Bookes of his library." The library contained "all manner of the most curious Pictur's that the Duke hath procured," many bought from the King of England. Hartlib also noted the Duke's purchase of a "Chamber of Rarity" from Paludanus, "besides a brave Arsenal." A memo on horticulture among Hartlib's papers offered eyewitness descriptions of the Duke's garden.⁵⁷

The Duke lavished particular care on his alchemical laboratory. Friedrich Zobel directed it from around 1636. The lifelong traveler and alchemical intelligencer Joachim Morsius spent the last four years of his life there, from 1640 to 1644, and Joel Langelott (1617–1680) supervised a complete overhaul of the laboratory in 1655. Even Joachim Polemann (ca. 1620–1682) spent time in the Gottorf laboratories. Henry Stubbe (1632–1676), later criticizing what he perceived as the Royal Society's inflated claim to a novel patronage of natural knowledge, would ask, "How long hath the Duke of Holstein kept up his Laboratory and Chymical Colledge at *Gottorf*?"⁵⁸

Such a "colledge" was evidently the inspiration for Hartlib's hopes that Clodius would, along with Digby, establish a "Chymical Council" of similar fame in London, a project kindled in the *Laboratorium Clodianum* in Hartlib's back kitchen. In line with the international intent of the *Christianae Societatis Pactum* of 1652, Hartlib envisioned Clodius's institution as not merely existing for the benefit of a particular state. It would be a "universal laboratory, to be erected after such a manner as may redound, not only to the good of this island, but also to the health and wealth of all mankind."⁵⁹

THE PROTESTANT INTEREST AND ANTICHRIST

Hartlib's aspiration to employ collaborative and useful knowledge in service to the public related to the political notion of a shared interest. Political writers, whether Catholic or Reformed, regularly distinguished between a good and a bad version of the new political concept called the "reason of state" (or, as it became increasingly known in the 1640s, "interest"). The good, Christian version was based on knowledge, while the tyrannical, Machiavellian version relied on violence and deception.⁶⁰ To religious writers, this split

⁵⁶ Hartlib Papers 28/2/25a (*Ephemerides*, 1651). For Olearius's work see note 53, above; and Cuveland, *Der Gottorfer Codex von Hans Simon Holtzbecker*.

⁵⁷ Hartlib Papers 28/2/19A (*Ephemerides*, 1651), 8/38/1a–2b (undated).

⁵⁸ Oliver Humberg, "Joel Langelott, Arzt und Alchemist am Hofe Friedrichs III," in *Die Bibliothek der Gottorfer Herzöge*, ed. Kuder (cit. n. 55), pp. 79–90; Hartlib Papers 29/8/3a (*Ephemerides*, 1659) (on Polemann); and Henry Stubbe, *Legends No Histories; or, A Specimen of Some Animadversions upon the History of the Royal Society* (London, 1670), pp. 3–4.

⁵⁹ Newman and Principe, *Alchemy Tried in the Fire* (cit. n. 8), p. 259; and Hartlib to Boyle, 8 May 1654, in *Correspondence of Robert Boyle*, ed. Hunter et al., Vol. 1, p. 175.

⁶⁰ Michel Senellart, *Machiavélisme et raison d'état: XIIe–XVIIIe siècle* (Paris: Presses Univ. France, 1989); Robert Bireley, *The Counter-Reformation Prince: Anti-Machiavellianism or Catholic Statecraft in Early Modern Europe* (Chapel Hill: Univ. North Carolina Press, 1990); and Maurizio Viroli, *From Politics to Reason of State:*

between a good and a bad version of political reckoning might fall along a stark divide between Christ and Antichrist. For instance, the Lutheran divine so admired by Hartlib and Dury, Johann Valentin Andreae (1586–1654), contrasted the “heavenly reason of state” with the Satanic “irrational reason of state.”⁶¹ According to Andreae, devilish political tactics threatened the Christian polity. The Tyrant Antichrist came to attack Andreae’s model polity, Christenburg, his armada bearing hordes of Statists, Machiavellists, and the self-interested (“Politen und Ragonistn/ Sejanr und Macchiavellistn” and “Eigen Nutz sucher”).⁶² Those, by contrast, who relied on God in a Christian republic would have no need for the secrets or reasonings of the state that so delighted Satan.⁶³

The anti-Christian view of the reason of state offered an apocalyptic interpretation of contemporary political theory and the violence that theory allegedly produced.⁶⁴ According to such interpretations, divisions among Christians were fomented by Antichrist. John Dury blamed the difficulties of making peace among Christians on the willfulness “of some Divines” and on the “reason of state as some Politicans who find out and foment differences betwixt parties that they may rise or stand in the midst of their divisions.” “Politique reasonings of men” formed “the beast” that the false church “rideth upon.” Alas, all too often, Reformed nations sought their own benefit at the expense of their fellow Christians. Peter Figulus (1619–1670), for instance, complained to Hartlib of the “foolish Ratio Statûs” according to which Holland did not come to the aid of the “whole Protestant Interest.”⁶⁵ If different nations could only realize their shared interests, they might form a united league against their demonic opponent.

For Dury, Hartlib, and other Reformed political theorists, the political strategy that could defeat Antichrist was that of a unified “Protestant interest.” Such views dovetailed with those developed by the new Lord Protector, Oliver Cromwell. Cromwell assured Parliament that “all interests of the Protestants in Germany, Denmark, Helvetia, and the Cantons, and all the interests in Christendom are the same as yours . . . your danger is from the common enemy abroad, who is the head of the Papal interest, the head of the anti-Christian interest.”⁶⁶ Apocalypse and cutting-edge “interest” theory produced the idea of the Protestant interest.

The Acquisition and Transformation of the Language of Politics, 1250–1600 (Cambridge: Cambridge Univ. Press, 1992).

⁶¹ Johann Valentin Andreae, *Mythologiae Christianae sive virtutum & vitiorum vitae humanae imaginum libri tres* (Strasbourg, 1618), p. 187: “cùm Divini juris peritissimus quidam rationis huius irrationabilis interitum praesagiens: Confidet inquam, cives, nam haec Coelici status ratio est, omnes statuum impias, injustasque rationes cum horrore deiiceret.”

⁶² Johann Valentin Andreae, *Die Christenburg* (Freyburg, 1626), pp. 23–24.

⁶³ Johann Valentin Andreae, *Reipublicae Christianopolitanae descriptio* (Strasbourg, 1619), p. 58: “Cùm ad Deum omnia Reipub. Christianae referantur, nihilopus est arcanis, aut status rationibus, quibus Satan in regno suo delectatur.”

⁶⁴ Peter Schmidt, *Spanische Universalmonarchie oder “teutsche Libertet”* (Stuttgart: Steiner, 2001), p. 367; [Lorenz Grammmendorff], *Erkântniusz Der Zergerung oder undergangs dieser vierdten Monarchiae* (1641), p. 5; Jan Amos Comenius, *Historia Persecutionum Ecclesiae Bohemicae . . . in qua inaudita hactenus Arcana Politica, consilia, artes, praesentium bellorum verae causae & judicia horrenda exhibentur* (1648); [Michael Gühler], *Clavis Apocalyptica*, ed. Samuel Hartlib and John Dury (London, 1651), p. 101; and Martin Mulsow, “Who Was the Author of the *Clavis Apocalyptica* of 1651? Millenarianism and Prophecy between Silesian Mysticism and the Hartlib Circle,” in *Millenarianism and Messianism in Early Modern European Culture*, Vol. 4: *Continental Millenarians: Protestants, Catholics, Heretics*, ed. John Christian Laursen and Richard H. Popkin (Dordrecht: Springer, 2001), pp. 57–75.

⁶⁵ Dury to Hartlib, 31 Mar. 1634, Hartlib Papers 1/9/1b; copy of letter on “Mercy and Truth,” 4 Nov. 1637, Hartlib Papers 26/19/4b; and Peter Figulus to Hartlib, ca. Nov.–Dec. 1658, Hartlib Papers 9/17/55a–b.

⁶⁶ John Towill Rutt, ed., *The Diary of Thomas Burton* (London, 1828), p. clv.

**“TO BEE EXEMPTED AND NEUTRALL FROM ALL VEXATIONS OF WAR”:
THE NEUTRALITY NEGOTIATIONS OF 1653**

Cromwell’s growing belief in the importance of a “Protestant interest” implicated the negotiations of John Dury for unity among Christian churches much more centrally in larger political concerns than they had been previously. Heads of state hoping to join the neutrality negotiations of 1653 (intended to preserve peace among rival Protestant polities, especially England and the Netherlands) invoked the idea of a united “Protestant interest.” Other reformed polities and heads of state, including the Swiss Cantons, the Duke of Holstein, the Count of Oldenburg, and the Hansa towns of Bremen, Lübeck, and Hamburg, asked to be included in the neutrality agreement. Schleswig-Holstein utilized Frederick Clodius to aid in this negotiation, while Henry Oldenburg represented Bremen.⁶⁷

As official correspondence preserved in Gottorf reveals, John Dury also took an active role in Schleswig-Holstein’s negotiations. The agreement that Dury, Hartlib, and Clodius had previously forged in support of a “Christian Society” now played a role in the negotiations of international “Protestant interest.” The Duke’s archives also, however, reveal tensions between the varying interests of the Baltic Protestant polities, including Schleswig-Holstein, Denmark, Sweden, and Hamburg.

A thick file preserved in Schleswig offers us a detailed view of the ebb and flow of the Duke’s negotiations from April 1653. The negotiations began between his agent Vincent Möller (1610–1688) and Richard Bradshaw (fl. 1650–1659), the English resident in Hamburg; the Duke hoped to continue these discussions in London through the agency of Joachim Petersen (d. 1660), a diplomat already in the city to negotiate a peace on Hamburg’s behalf. On 28 April 1653 the Duke wrote to the English Parliament as well as the English representative in Hamburg, seeking a neutrality agreement through Petersen’s ministrations.⁶⁸ Covering all his bases, he also wrote to the English Royalist military leader in exile, Thomas Wentworth (1613–ca. 1665). At the same time, he issued a pass and 90 Reichsthaler to Clodius, then sojourning briefly on the Continent, to return to England.⁶⁹ (See Appendix B.)

Alongside this political mission, the Duke issued Clodius botanical and chemical instructions on 4 May. (See Appendix A.) This evidently represented an expansion of Clodius’s previous mandate concerning the researching of Chymia, issued by the Duke in March 1651. This new order included instructions to perfect his botanical knowledge by taking notes on all authors and comparing them, but also to consult all possible authors, doctors, professors, gardeners, and lovers (“Liebhaber”) of gardens and plants. He should diligently note down what could be observed in each garden, develop friendships, lay the foundation for future correspondence (“Correspondenz”), and search for rarities, botanical and otherwise. Finally, Friedrich commanded Clodius to investigate famous chymists and their secret processes (“secretiores labores”). Clodius did not hesitate to prosecute the Duke’s orders. Hartlib’s plans for a “Universal Laboratory,” already drafted in May 1654, projected Clodius as head of the “Chemical College,” in which he would become the

⁶⁷ For Henry Oldenburg’s efforts on behalf of Bremen see State Papers Domestic 82/9, fol. 161, National Archives.

⁶⁸ Landesarchiv Schleswig-Holstein 7/1431; and State Papers Domestic 82/9, fols. 1–160, National Archives.

⁶⁹ Landesarchiv Schleswig-Holstein 7/2310, fol. 82v (22 July 1652): “Adam Oleario, Bibliothecario . . . erstattet, die er zu zwo unterschiedenen Zeiten auff gehalten Fürstl. Befehl an Fridericum Clodium nacher Hollandt übermacht hat 90 Rthlr.” (Cf. Paarmann no. 602.)

central epistolary node for medicinal and chymical processes and secrets, “entrusted with a full and entire communication of them all and others.”⁷⁰

At this point, Dury took it upon himself to counsel Friedrich and pair Gottorf’s interests with those of Hartlib more firmly. Dury, along with Theodore Haak, Hartlib, and John Milton, had already been involved in the negotiations between England and the Count of Oldenburg in 1651. The document Dury helped produce for Oldenburg would serve as a model for Holstein. In a letter to the Duke of 16/26 June 1653, Dury lavishly praised Friedrich for his piety and peaceful inclinations. He also insisted that Holstein’s interests were best represented in London not “through the latticework” (“non per transennam”), by the Hamburg syndic Petersen, but through a specially appointed legate. Dury reminded the Duke that a perfect candidate, a Holstein youth (“juvenis”) whose efforts could be promoted through Dury’s parliamentary connections, was already in England. This youth was, of course, none other than Clodius himself.⁷¹ Dury was, in other words, determined to place Holstein’s political negotiations directly in the hands of the signees of the *Christianae Societatis Pactum*.

The Duke replied to Dury on 7 August 1653, thanking him for his candor. He promptly revoked Petersen’s mandate, but instead of accrediting Clodius to attend the negotiations, he undertook to dispatch a legate who would, with Clodius’s assistance (“adjuvante Friderico Clodio”), faithfully pursue Schleswig’s interest under Dury’s counsel.⁷²

Duke Friedrich initially hoped to send his court Chancellor, Johann Adolf Kielmann von Kielmannsegg (1612–1676), to London, but the latter was busily engaged in negotiating the marriage of the Duke’s daughter Hedwig-Eleonora to the Swedish King.⁷³ Ultimately, the Duke selected Colonel Paul Würz (1612–1676). In his instructions to Würz, the Duke mentioned that Clodius would be able to introduce him to the individuals most helpful to his mission. Like Clodius, the colonel would serve as both a political agent and a scientific intelligencer. He would inform Hartlib about the natural history of Holstein, new inventions, and the “whole mysterie of making of Potashes.”⁷⁴

In a subsequent letter to the English Parliament, Würz reminded them that the Duke’s predecessors had long maintained a peace with England. The Duke observed with alarm the “Dissentions risen between the most Potent Commonwealth and the Confederate Provinces of the lowe Countrys.” “If God doe not quench this Flame of this Warre with a tymely Peace” “it may invade the Neighboring Countries, and may damage his Highness Dominions as being seated in the Neighborhood.” He requested Parliament to declare the Holstein “Dukedomes and Provinces to bee exempted and Neutrall from all vexations of

⁷⁰ See note 16, above; and Hartlib to Boyle, 15 May 1654, in *Correspondence of Robert Boyle*, ed. Hunter *et al.*, Vol. 1, p. 180. See also Webster, *Great Instauration* (cit. n. 8), pp. 302–305.

⁷¹ On the Oldenburg agreement and its role in Holstein see Leo Miller, *John Milton and the Oldenburg Safeguard: New Light on Milton and His Friends in the Commonwealth from the Diaries and Letters of Hermann Mylius, Agonist in the Early History of Modern Diplomacy* (New York: Loewenthal, 1981), p. 251. The Oldenburg safeguard served as the model for the “Safe-guard for the Duke of Holstein”: State Papers Domestic 46/99, fol. 131, National Archives. Landesarchiv Schleswig-Holstein 7/1431, unfoliated (16/26 June 1653): “si huic qui iam hic est Juveni, ea cura demandetur, non dubito quin feliciter & sine strepitu aut apparatu negotium in eius manu procedet: atque eo fine libenter omnem ei praestabo operam, quae a mea tenuitate erga supremi senatus membra proficisci poterit.”

⁷² Landesarchiv Schleswig-Holstein 7/1431, unfoliated (5 Aug. [“nonis sextilis”] 1653).

⁷³ Eduard Georg Ludwig William Howe von Kielmansegg and Erich Friedrich Christian Ludwig von Kielmansegg, *Familien-Chronik der Herren, Freiherren und Grafen von Kielmansegg* (Leipzig, 1872), p. 72; and Rathjen, “Friedrich III. Gottorf im Räderwerk der nordeuropäischen Mächtepolitik” (cit. n. 50), p. 33.

⁷⁴ Hartlib Papers 28/2/81b–82a (*Ephemerides*, 1653), 29/4/2a (*Ephemerides*, 1654).

warr” and allowed “freelye to drive their Trades with Forraigners by Land and Sea.”⁷⁵ Würz’s implorings met with approval. The file in the Duke’s archives concludes with several printed copies of a neutrality agreement with the Dutch, a draft agreement with England signed by John Milton (1608–1674) and others, a print version signed by Francis Rous (1579–1659), and a proclamation by Cromwell, which secured Holstein’s neutrality.

HARTLIB, DURY, AND CLODIUS AS SCIENTIFIC DIPLOMATS

Useful knowledge, especially knowledge about nature, had a unique role to play in negotiating and supporting the Protestant interest. Political writers had long characterized the good, Christian “reason of state” as distinguished by its reliance on useful knowledge, rather than violence. The Pact for a Christian Society, Duke Friedrich’s dual political and botanico-chymical missions entrusted to Clodius, and Dury’s larger plans for his irenic negotiations on the Continent all employed what we might call scientific diplomacy.

The ways Samuel Hartlib and John Dury blended learned intelligence with politico-religious agency are well known and were specified by Dury in his manuscript tract “A Platforme of the Journes undertaken for the worke of Peace Ecclesiastical and other profitable ends” (ca. 1633). (See Appendix C.) Dury detailed his plans for traveling through Protestant Central Europe in an effort to ally the divided churches in a common cause. This was his “cheefe and maine purpose.” Yet he included an addendum to this program for the collection of mechanical, industrial, and chymical knowledge. “But by the Bye I am resolved as tyme and leisure shall permitt, to gather, to elaborat, and to observe severall things of great profitte,” he wrote. In particular, he would observe the “Inventions” of recent German “Reformators” “wherein they are thought to excell former ages and other societies.” These included methods of interpreting Scripture, magical languages for communication, the “Arts and Sciences Philosophicall, Chymicall & Mechanicall,” and model societies or corporations that profitably joined together all parts of society, including philosophers and craftsmen.⁷⁶

The German patronage of the “Arts and Sciences Philosophicall, Chymicall & Mechanicall” not only aided trade, but through them “the secrets of Nature are thought to be unfolded, so yt Gods wonderfull power, wisdom and goodness is to be seene more apparently in bodily things than ever heretofore.”⁷⁷ Furthering the knowledge of nature would both increase the material well-being of all and also provide testimony leading toward their spiritual welfare. Dury provided explicit justification for why the search for this knowledge, which at first seems to sit uneasily with his ecumenical mission, was incorporated within it.

There were thus many structural similarities between Dury’s “Platform” and Clodius’s diplomatic mission—and even in the practical measures taken by Hartlib to institutionalize ideals expressed therein. Both had a central mission (the union of churches for Dury and a treaty of neutrality for Clodius) and a secondary mission (the collection of inventions and profitable knowledge). Both included as a specific aim the establishment of a “platforme of correspondency” or “Correspondenz.” Both included detailed descrip-

⁷⁵ State Papers Domestic 75/16, fol. 223 (26 Aug. 1653), National Archives. There is also a letter of ca. 1654 from a certain Herman Wirtz, agent of the Duke of Holstein, to Oliver Cromwell: State Papers Domestic 81/54, fol. 97, National Archives.

⁷⁶ British Library, London, MS Sloane 654, fols. 247r–249v.

⁷⁷ *Ibid.*

tions of methods to be used in collecting specialist knowledge, from books as well as craftsmen.

The tendency of Hartlib and Dury to collect utilitarian natural knowledge has been seen as “Baconian,” a term that establishes Francis Bacon (1561–1626) as the origin for this scientific agency.⁷⁸ What the “Baconian” view of intelligencing does not reflect is the fact that Dury’s mission to Central European states intersected with those states’ own international political and intelligence-gathering missions. These included the 1653 political and botanical/chymical mission on which Duke Friedrich dispatched Frederick Clodius. Dury and Hartlib were actively seeking to join and forge correspondence networks across these states, and these states had the same ends in mind. By studying intelligencers only from the irenic perspective of Dury and Hartlib, we view only one half of this interaction. As seen from the perspective of Clodius and Gottorf, Dury’s mission takes on a different, distinctly political tone. Furthermore, in the course of his career Dury did not voyage to war-ravaged Central Europe to transfer techniques of communications, mediation, and model politics from England; he sought, rather, to collect them there.

The ramifications of such political views of useful knowledge can be seen in the subsequent careers of other “scientific diplomats” of the era. Both Clodius and Henry Oldenburg remained in England and served as important members of Hartlib and Dury’s scientific and private community: Clodius married Hartlib’s daughter, and Oldenburg married Dury’s. Another “scientific diplomat,” the English mathematician John Pell, worked with Dury to strengthen relations between England and the Protestant Swiss Cantons. Theodore Haak (1605–1690) was in England as a semiofficial agent for Karl Ludwig of the Palatinate (1617–1680), and he was also rewarded for his services to the Interregnum Parliament.⁷⁹ Following the Restoration, Oldenburg would become Secretary to the Royal Society. Haak was also a founding member. Pell would be elected a member of the Royal Society and was, like Clodius, invited to Cheshire to join the “Christian Society” project at Brereton Hall. While Oldenburg, Haak, and Pell would enjoy much more august careers following the Restoration than did Clodius, their divergent futures should not obscure their similar roles in 1653.

JOHANN CLODIUS, JR., NATURAL KNOWLEDGE, AND THE REASON OF STATE

The successful conclusion to the neutrality negotiations that had been undertaken on the advice and trust of John Dury and Frederick Clodius was not, however, the only manifestation of the linked scientific and political missions of Gottorf intelligencers in England. A role was also played in this regard by Frederick’s younger brother, Johann Clodius, Jr. As mentioned previously, after corresponding with Hartlib, Johann was in England in 1658 and 1659 to collect specimens for Duke Friedrich; there he made Boyle’s acquaintance and translated alchemical works for his benefit. In 1658, however, Clodius also set in print an erudite tract, *Brevis dissertatio de ratione status* [*A Short Treatise on the Reason of State*], which he

⁷⁸ This is the view adopted in the influential essay of Hugh Trevor-Roper, “Three Foreigners: The Philosophers of the Puritan Revolution,” in *Religion, the Reformation, and Social Change*, 3rd ed. (London: Secker & Warburg, 1984), pp. 237–293. Howard Hotson critiqued this view in his lecture “Hugh Trevor-Roper’s ‘Three Foreigners’ Revisited: Vulgar Baconianism, Central Europe, and the Origins of the Royal Society” (Seminar, Forschung- und Landesbibliothek, Gotha, Nov. 2011).

⁷⁹ Noel Malcolm and Jacqueline Stedall, *John Pell (1611–1685) and His Correspondence with Sir Charles Cavendish: The Mental World of an Early Modern Mathematician* (New York: Oxford Univ. Press, 2005), pp. 150–155; and Pamela R. Barnett, *Theodore Haak, F.R.S. (1605–1690)* (The Hague: Mouton, 1962).

dedicated to Boyle.⁸⁰ Boyle, however, was probably not the first dedicatee of this work. Earlier in 1658 Duke Friedrich granted Johann 30 Reichsthaler in thanks for a dissertation printed at Helmstedt that was dedicated to him, and it is probable that the London tract was similar or identical in content to that issued in Helmstedt.⁸¹

Clodius's *Brevis dissertatio* drew heavily on Hippolytus à Lapide's learned *Dissertatio de ratione status in Imperio nostro Romano-Germanico* [*On the Reason of State in Our Holy Roman Empire*] of 1640. Lapide was the pseudonym of Bogislaus Philipp von Chemnitz (1605–1678), a Swedish employee who examined the state of Central Europe during the Thirty Years' War from the perspective of Sweden.⁸² This was a perspective shared in Holstein, particularly as a new Danish–Swedish war ravaged Gottorf in 1658. Given the source, political context, subject, and likely place of composition of Clodius's work, we might be surprised by both the place of publication and the work's dedicatee (i.e., London and Boyle). However, the prior relationship of Frederick Clodius with Hartlib and his friends, including Boyle, mediated as it was by a “Christian” version of the reason of state, can help us understand why Johann chose such a dedicatee. So can the content of his book.

Bogislaus Philipp von Chemnitz had drawn continual connections between the reason of state and the empirical study of nature in his *On the Reason of State* (1640), and Johann Clodius repeated these sentiments in 1658. Just as the Royal Society would later select “Nullius in verba” [“According to the words of no single person”] as its motto, Chemnitz and Clodius described how writers on the reason of state had long professed to eschew *verba* (words) in preference to *res* (things). They averred that their works were not in the style of “Academic” or “Scholastic” disputations. Rather, they preferred the truth of things to opinion, for it was the job of politicians to pursue not the husk of words but, rather, the kernel of things.⁸³ Such deprecations of academic disputations might be more familiar to

⁸⁰ Johann Clodius, *Brevis dissertatio de ratione status* (London, 1658), sig. [pi2r]: “Viro nobilissimo ac per-illustri Roberto Boyle, Domino ac Mecaenati suo omni Observantiae cultu aeternum devenerando. Pagellas hasce In debita devotionis atque observantiae signum, cum voto gratiae Dei, exoptataeque prosperitatis, Humill. Offert Johannes Clodius.” Unnoticed in Boyle scholarship, this dedication appears in only one of the two extant copies: Bodleian Library, Oxford, 8° C74 Linc. Martin Lister's (1639–1712) copy (Shelfmark: Lister I 90[2]) has the relevant leaf canceled.

⁸¹ Landesarchiv Schleswig-Holstein 7/22322, fol. 61v (July 1658): “Johannis Clodij Gärtner Sohn, wegen einer zu Helmstedt gehaltenen und Ihr. Fl. Durchl. unterthänigst dedicirten Disputation . . . 30 Rthlr.” (Cf. Paarmann no. 935.) Paarmann and Johannes Moller both ascribe a 1688 work entitled *De ratione status* to Frederick Clodius on the authority of Dethlev Cluver, F.R.S., but this must be a confusion with Johann's 1658 publication. See Johannes Moller, *Cimbria Literata Sive Scriptorum Ducatus Utriusque Slesvicensis et Holsatici* (Copenhagen, 1744), p. 99; and Paarmann, “Gottorfer Gartenkunst” (cit. n. 13), p. 107. No copy of the original 1658 Helmstedt dissertation is extant.

⁸² Hippolytus à Lapide [pseud. Philipp von Chemnitz], *Dissertatio de ratione status in Imperio nostro Romano-Germanico* (1640). Clodius even cited Lapide as an authority (p. 22). On Lapide see Rudolf Hoke, “Hippolithus a Lapide,” in *Staatsdenker im 17. und 18. Jahrhundert: Reichspublizistik, Politik, Naturrecht*, ed. Notker Hammerstein et al. (Frankfurt am Main: Metzner, 1977), pp. 118–128.

⁸³ Lapide [Chemnitz], *Dissertatio de ratione status in Imperio nostro Romano-Germanico*, p. 2: “Non itaque, Academicorum more, verborum apices sectamur, aut umbraticis disputationibus, & subtilibus, hinc inde accersitis, argumentis, cumulatisque variorum Doctorum autoritatibus, quibus Politico-Legistae nostri veritatem, seu abstrusam eruunt, seu erutam potius abstrudunt, tempus perdemus aut chartam jamdudum est, quod argutari & nugari deducimus. Sed dicemus, quod res est; plusque apud nos valebit, quod est in rei veritate, quam quod in opinione. . . . Novimus enim, verè Politicorum esse, non disputare, sed vivere; nec verborum corticem, sed rerum sectari nucleum.” Clodius, *Brevis dissertatio de ratione status* (cit. n. 80), p. 4: “Non itaque, Scholasticorum more, verborum hic sectabimur apices, aut umbraticis hinc inde accersitis, argumentis, cumulatisque variorum argutiis, (quibus Politico-Legistae nostri veritatem, seu abstrusam eruunt, seu erutam potius abstrudunt) tempus chartamque perdemus: sed, quod res est, dicemus; plusque apud nos valebit, quod est in rei veritate, quam quod in opinione. . . . Vere enim Politicorum est, non disputare, sed vivere; nec verborum corticem, sed rerum sectari nucleum.”

us from scientific or heterodox religious rhetoric, but they were common among reason of state writers who rejected idealist political philosophy in favor of a political art based on the study of actual human behavior.⁸⁴

Chemnitz and Clodius conceded that this realist study was necessary only because of man's fallen nature; were man ideal, it would be possible to legislate ideal polities. They also conceded that a diabolical reason of state taught man how to take advantage of man's evil inclinations. Just as Nature, owing to ill-disposed matter, might sometimes produce monstrously formed bodies, so too could human desires, deflecting away from right reason, produce a monstrous reason of state. This diabolical reason of state was the origin of tyranny and atheism.⁸⁵ The good reason of state, however, represented a great modern discovery. Echoing Chemnitz, Clodius noted that the term "reason of state" was unknown to the ancients. Even though philosophers such as Plato and Aristotle had nevertheless some notion of it, they could not compare to the moderns. "Just as new Mathematicians, through their telescopes, have observed fixed stars in the firmament and fixed spots on the sun unknown to the ancients, so too in the new Politics do they have their optical devices, that is, their writings, which, like precise spectacles, allow them to illuminate those arts of prudence hidden from the ancients."⁸⁶

The emphasis on contemporary empirical observation and utility that pervades the works of Chemnitz and Clodius can help us understand Clodius's choice of subject and his two dedicatees. As we have seen, his older brother had served Duke Friedrich as a "scientific diplomat" who combined correspondence about natural knowledge and political affairs. Contemporary works on the reason of state stressed the similarities between these two forms of knowledge. The Duke likewise had funded the young Clodius's studies, and Johann Clodius sought as well to build relationships with those individuals known to his brother, such as Boyle.

Boyle, like Dury and Hartlib, participated in the scientific diplomacy practiced by Frederick Clodius and other international visitors. For instance, Boyle patronized Wilhelm von Schroeder (1640–1688), the son of the chancellor at the court of Gotha-Saxe-Altenburg, during his visit to England. At Boyle's suggestion, Schroeder was inducted

⁸⁴ Merio Scattola, *Dalla virtù alla scienza: La fondazione e la trasformazione della disciplina politica nell'età moderna* (Milan: Angeli, 2003), pp. 427–428. Clodius, *Brevis dissertatio de ratione status* (p. 162), and Lapide, *Dissertatio de ratione status in Imperio nostro Romano-Germanico* (p. 4), also had the same thing to say about ideal polities such as Plato's Republic and More's Utopia.

⁸⁵ Lapide [Chemnitz], *Dissertatio de ratione status in Imperio nostro Romano-Germanico*, p. 9: "Quin potius monstrum hoc Rationis dici meretur. Sicut enim Natura, si, propter indispositam & ineptam materiam, enormiter aberret in formatione corporis, monstrum producit: Ita voluntas & cupiditas humana, deflectens à rectae rationis dictamine, sub ejus tamen praetextu, hanc monstrosam Status Rationem effingit; velut portentum quoddam sanae rationis. Imò diaboli haec ratio dici potius debet, velut Pius V. Pontifex eam appellavit; quae ex tyrannide & atheismo originem ducit." Clodius, *Brevis dissertatio de ratione status*, pp. 41–42: "Quin potius monstrum hoc Rationis dici meretur. Sicut enim Natura, si, propter indispositam & ineptam materiam, enormiter aberret in formatione corporis, monstrum producit: Ita voluntas & cupiditas humana, deflectens à rectae rationis dictamine, sub ejus tamen praetextu, hanc monstrosam Status Rationem effingit; velut portentum quoddam sanae rationis. Imò diaboli haec ratio dici potius debet, velut Pius V. Pontifex eam appellavit; quae ex tyrannide & atheismo originem ducit."

⁸⁶ Lapide, *Dissertatio de ratione status in Imperio nostro Romano-Germanico*, pp. 3–4: "Et quemadmodum novi Mathematici, per tubos suos, certas in firmamento stellas, certas in sole maculas, veteribus incognitas observarunt: Ita quoque Politicissimus novus suos habet Opticos, qui scriptis suis, veluti certis specularibus, has a Veteribus occultatas Prudentiae artes clarius observandas tradiderunt, inque lucem protraxerunt." Clodius, *Brevis dissertatio de ratione status*, p. 31: "Et quemadmodum novi Mathematici, per tubos suos, certas in firmamento stellas, certas in sole maculas, etiam veteribus incognitas observarunt: Ita quoque Politicissimus novus suos habet Opticos, qui scriptis suis, veluti certis specularibus, has a Veteribus occultatas Prudentiae artes clarius observandas tradiderunt, inque lucem protraxerunt."

into the Royal Society at the tender age of twenty-three.⁸⁷ Although he communicated some secrets to the Royal Society both before and after his election, at least one contemporary pointed out that he had done little to justify the honor.⁸⁸ Schroeder merited election to the Royal Society not on account of his own natural investigations, but because he was a representative from the Gotha court, which had previously entertained Dury, Oldenburg, and Boyle's nephew, Richard Jones (1641–1712).⁸⁹ At first glance, Clodius and Schroeder seem connected to Boyle primarily via alchemy and natural history. But underlying these scientific relationships were political ones. Ultimately, Clodius and Schroeder came to know Boyle because of their relationship with their respective dukes.

Shortly after his return home in 1663, Schroeder, like Johann Clodius, published a dissertation on the reason of state, which he dedicated both to the future Duke Friedrich I of Gotha-Saxe-Altenburg (1646–1691) and to Frederick Clodius's friend Kenelm Digby. His political dissertation included, oddly, alchemical and natural historical corollaries, which, as Leibniz noted, “savoured of the new philosophy, which England is full of.”⁹⁰ Although English Fellows of the Royal Society routinely forswore meddling in political affairs, to figures such as Johann Clodius and Schroeder it seemed appropriate to mix the reason of state and natural knowledge in their writings and to dedicate those works to figures such as Boyle and Digby.

CONCLUSION: SCIENTIFIC DIPLOMACY AND INTEREST IN THE MAKING OF SCIENCE

Both botany and alchemy had long contributed to the extrapolitical development of communities and communication networks. The model of the “Republic of Letters” in general—or, more specifically, the “alchemical republic”—suggests an extraterritorial association of individuals exchanging correspondence, specimens, and intelligence.⁹¹ However, such networks also included state-sponsored agents who inserted themselves in less formal networks for political ends. For instance, Duke Friedrich III specifically ordered Frederick Clodius to develop friendships (“freundschaft und Correspondentz”) and to draw on the population of garden amateurs (“Liebhaber der Gerten und Kräuter”). Smaller states in particular could not

⁸⁷ According to Lars Magnusson, *Mercantilism: The Shaping of an Economic Language* (New York: Routledge, 1994), p. 197, for “the later establishment of a specific cameralistic discourse, Schröder was certainly more important than either Becher or Hörnigk.” See also Andreas Selling, *Deutsche Gelehrten-Reisen nach England 1660–1714* (Frankfurt am Main: Lang, 1990); and R. E. W. Maddison, “Studies in the Life of Robert Boyle, F.R.S., Part IV: Robert Boyle and Some of His Foreign Visitors,” *Notes and Records of the Royal Society of London*, 1954, 11:38–53.

⁸⁸ *Chrysopoeiae Magister* (Dantzig, 1685), p. 8, cited in Vera Keller, “The Centre of Nature: Baron Johann Otto von Hellwig’s Indonesian Alchemy between a Global Network and a Universal Republic,” *Early Science and Medicine*, 2012, 17:570–588, esp. pp. 585–586. At a meeting of the Royal Society on 29 Oct. 1662, Schroeder “proposed the Experiment of breaking a Serpentine Stone by a Spider, which he was desired to shew to the Society next day”: Journal Book Original 1, 102. Papers he communicated to the Society included “How to increase saltpetre,” Classified Papers, 9i, 6 (read 7 Jan. 1662), “The manner of making at Norimberge in Germany the Foliars, which the Goldsmiths use to put under pretious stones,” Boyle Papers (presented 9 Nov. 1671), and “Concerning Glasse tinged,” Register Book Original, 4, 40 (read 15 Feb. 1672), Royal Society Archives, London.

⁸⁹ Hall and Hall, eds., *Correspondence of Henry Oldenburg*, Vol. 1 (cit. n. 8), pp. 179–180.

⁹⁰ Wilhelm von Schroeder, *Dissertatio academica, cuius prima pars de ratione status, altera de nobilitate, tertia de ministrissimo* (Jena, 1663); and Gottfried Wilhelm Leibniz, *Die philosophischen Schriften*, Vol. 1 (Berlin, 1875), p. 7.

⁹¹ For the alchemical republic see Didier Kahn, *Alchimie et paracelsisme en France à la fin de la Renaissance (1567–1625)* (Geneva: Droz, 2007), p. 259; and Walter Woodward, *Prospero’s America: John Winthrop, Jr., Alchemy, and the Creation of New England Culture, 1606–1676* (Chapel Hill: Univ. North Carolina Press, 2010).

afford to establish the salaried, exclusively in-house intelligence systems of the sort that gathered under Phillip II (1527–1598) in Simancas or Jean-Baptiste Colbert (1619–1683) in France.⁹² Heads of smaller states relied on their agents joining existing international networks. Smaller states therefore played a less obvious, but no less important, role in funding, motivating, and maintaining scientific correspondence networks.

In rebuilding his lands after the Thirty Years' War, Duke Friedrich accumulated massive collections through such networks. His efforts intersected with the pan-European euhemerist campaigns of figures such as Dury and Hartlib.⁹³ At the same time that Hartlib and Dury attempted to penetrate state-building and scientific centers such as Gottorf in service to the "Protestant interest," Duke Friedrich attempted to penetrate their correspondence networks in service to his own duchy's interest—above all in the fraught neutrality negotiations of 1653. The centers of accumulation of early modern science and government developed in tandem.

This intersection between scientific and political relationships might seem surprising now only because of the Royal Society's efforts in the Restoration to disavow any meddling with the reason of state. The idea that science, far from being disinterested, served a united "public interest" remained prevalent in both England and Central Europe. In the former, however, the relationship of this idea to the scientifically negotiated international "Protestant" interest was obscured. This was necessary following the Interregnum and the connections that had then been drawn by Hartlib and Dury between political utility and natural knowledge. From an English perspective in the 1660s, the 1650s represented a threat to the later Stuart monarchy. Thus, the connection of a Restoration group such as the Royal Society to prominent Interregnum figures such as Hartlib needed to be downplayed. From a Central European perspective in the 1660s, however, the state building undertaken by many a petty principality in the 1650s represented a new foundation for subsequent rule. The connection between natural knowledge and the reason of state only continued to become more explicit in emerging German cameralism, founded on the work of thinkers such as Lather and Schroeder.⁹⁴

Interest, which would become the dominant mode of political reasoning in Restoration England, as elsewhere in Europe, first appeared in public policy only in the 1640s and 1650s.⁹⁵ These decades are also familiar as signal ones for the spread of experimental

⁹² Jacob Soll, *The Information Master: Jean-Baptiste Colbert's Secret State Intelligence System* (Ann Arbor: Univ. Michigan Press, 2009); Antonio Barrera, *Experiencing Nature: The Spanish American Empire and the Early Scientific Revolution* (Austin: Univ. Texas Press, 2006); and Brendecke, *Imperium und Empirie* (cit. n. 12).

⁹³ Compare other contemporary intelligencers: Jill Bepler, "Herzog August and the Hartlib Circle," in *A Treasure House of Books: The Library of Duke August of Brunswick-Wolfenbüttel*, ed. Hedwig Schmidt-Glintzer (Wiesbaden: Harrassowitz, 1998), pp. 165–172; Iordan Avramov, "Merchants of Light: The Correspondence of Henry Oldenburg with His Fellow 'Intelligencers' (1656–1677)," *Wolfenbütteler Barock-Nachrichten*, 2000, 27:3–18; Mark Greengrass, "Samuel Hartlib and the Commonwealth of Learning," in *The Cambridge History of the Book in Britain*, Vol. 4, ed. John Barnard and D. F. McKenzie (Cambridge: Cambridge Univ. Press, 2002), pp. 304–222; and Marika Keblusek, "Book Agents: Intermediaries in the Early Modern World of Books," in *Your Humble Servant: Agents in Early Modern Europe*, ed. Hans Cools, Keblusek, and Badeloch Noldus (Hilversum: Uitgeverij Verloren, 2006), pp. 97–108.

⁹⁴ Pamela Smith, *The Business of Alchemy: Science and Culture in the Holy Roman Empire* (Princeton, N.J.: Princeton Univ. Press, 1994); and Alix Cooper, *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe* (Cambridge: Cambridge Univ. Press, 2007).

⁹⁵ Ernst Wolfgang Orth, "Interesse," in *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland*, ed. Otto Brunner, Werner Conze, and Reinhart Koselleck, 8 vols., Vol. 3 (Stuttgart: Klett, 1982), pp. 305–365; Peter Burke, "Tacitism, Scepticism, and Reason of State," in *The Cambridge History of Political Thought, 1450–1700*, ed. J. H. Burns (Cambridge: Cambridge Univ. Press, 1991), pp. 479–498; and Steven Pincus, "The Making of a Great Power? Universal Monarchy, Political

practice and communication, particularly among Hartlib's associates. It is the period concept of interest and the associated notions of social and political utility that allow us to argue that this conjunction was not merely contingent.

Certainly, international travel afforded diplomats and agents rare opportunities, and one might therefore argue that scientific exchange occurred "on the side," as it were, while politicians prosecuted their central concerns.⁹⁶ Scientific exchange would in that case not be directly linked to the pursuit of political interests. However, as we have discussed, Clodius, Hartlib, Dury, and others explicitly conceptualized the collection, communication, and shared exploration of natural knowledge as useful to a shared "Protestant interest." The products of knowledge were a necessary precursor to societal reform. Furthermore, the practice of collaboration and communication itself was politically useful. Much as Shapin and Schaffer have argued for a Restoration "polity of science" based on disinterest, our historical actors sought to strengthen the bonds of a shared, international interest. Scientific diplomacy helped them do so.

We might also note that forms of cultural diplomacy change noticeably over time. Art connoisseurs and artists such as Rubens, not chymists such as Clodius, were prominent in the international politics of the 1620s and 1630s.⁹⁷ Such shifts in diplomatic style might be related to changes in political mores. In the 1620s and 1630s these might include, for example, characteristics associated with the newly ennobled figure of the artist, such as magnificence, ingenuity, and *sprezzatura*. By contrast, our historical actors of the 1640s and 1650s continually sounded themes of social utility and humble Christian piety as the ends of both their political and their scientific efforts.

Despite science's continuing reputation as disinterested, the connection between natural knowledge and international negotiation remains. Scientific diplomacy currently enjoys a renaissance, with new conferences, journals, and awards underscoring how it might prevent international conflict. As Frank Press, science advisor to President Jimmy Carter, wrote in 1991, an "intersecting interest of nations, making for international cooperation, is that the scientific or technological goal is implicitly international—that it is feckless for one nation to go it alone, even making the dubious assumption that it has sufficient resources."⁹⁸ Such views, however, do not reflect on how scientific diplomacy shaped the

Economy, and the Transformation of English Political Culture," *European Legacy*, 2000, 5:531–545, esp. p. 535. Most commonly cited among historians of science (as in Cook, *Matters of Exchange* [cit. n. 2], p. 45) is the work of the economist Albert Hirschman, *The Passions and the Interests: Political Arguments for Capitalism before Its Triumph* (Princeton, N.J.: Princeton Univ. Press, 1997). Hirschman argues that throughout the seventeenth and eighteenth centuries interest was seen as harmless, in contrast to the passions, and that such views supported the "triumph" of "capitalism." Period concepts discussed above, such as the "Anti-Christian interest," however, show that this could not have been the case.

⁹⁶ See, e.g., Dorothy Stimson, "Hartlib, Haak, and Oldenburg: Intelligencers," *Isis*, 1940, 31:309–326.

⁹⁷ Daniela Frigo, "Prudence and Experience: Ambassadors and Political Culture in Early Modern Italy," *Journal of Medieval and Early Modern Studies*, 2008, 38:15–34; Badeloch Noldus, "An 'Unvergleichbarer Liebhaber,'" *Scandinavian Journal of History*, 2006, 31:173–185; Noldus, "Dealing in Politics and Art: Agents between Amsterdam, Stockholm, and Copenhagen," *ibid.*, 2003, 28:215–224; and Toby Osborne, "Van Dyck, Alessandro Scaglia, and the Caroline Court: Friendship, Collecting, and Diplomacy in the Early Seventeenth Century," *Seventeenth Century*, 2007, 22:24–41.

⁹⁸ Frank Press, "Preface: International Cooperation in Science—A New Agenda," in *Worldwide Science and Technology Advice to the Highest Levels of Governments*, ed. William T. Golden (Elmsford, N.Y.: Pergamon, 1991), p. 10. Examples of venues for scientific diplomacy are the American Association for the Advancement of Science's Center for Science Diplomacy; the conference "Science Diplomacy and the Prevention of Conflict," held at the University of Southern California on 5 Feb. 2010; and recent support from the National Science Foundation for projects of science diplomacy. See the National Science Board paper, *International Science and Engineering Partnerships: A Priority for U.S. Foreign Policy and Our Nation's Innovation Enterprise* (NSB-08-4, 2008).

emergence of modern science itself, including its international aspirations. The concept of intersecting interests served by the exchange of useful knowledge existed before modern science did. In other words, science does not serve international diplomacy because science is peculiarly international. Rather, science became international because international negotiators, such as Frederick Clodius, helped make it so.

APPENDIX A

Clodius's "Botanical Instruction," 4 May 1653
Source: Landesarchiv Schleswig-Holstein 7/6537, fols. 1r-v

Friderici Clodii Botanici Instruction

waß er nach Engelland verreist den 4ten May ao 1653

Unser Von Gottes gnaden Friedrichen Erben zu Norwegen, Hertzogen zu Schleßwig Holstein, Stormarn und der Ditmarßen, Graffen zu Oldenburg und Delmenhorste Instructio und Befehlig

Wonach sich der Erbahre Unser lieber getreuer Friedrich Clodius auf Bevorstehender seiner Reyse allerding zu achten,

Demmach Wir Uns auff deßfalls geschens inständiges Unterthänigstes ansuchen gnädigst ercläret, Ihn Friedrich Clodium Zu Unserem Botanico Zu bestellen, und solche Bedienung Ihm, nach Seiner abgelegten Reyse, worzu Wir Ihn anietzo destiniret, anzutreten gnädigst gewilliget, So wird er anfänglich Ihm Solches in allem seinem Thun und Vornehmen alß eine Besondere gnade für augen stellen, in solchem respect auch sich mit sonderem eyfer auf die Botanische Wißenschafft legen, und sich in derselben je mehr und mehr zu perfectioniren suchen, maßen auch Unser Befehlender Will und meinung ist, daß er daßelbe also zuwercke richte, zu dem ende all Authores Botanicos so Er bekommen kan, und notatu Signa geschreiben haben, zusammen bringen, selber fleißig Lesen, Conferire und wol einnemehe, damit er angezogene Bedienung so viel Beßer und mit mehrem nutzen Verstehen, führen und verwalten könne.

[fol. 1v]

Wie er dann 2do an allen orthen und enden, wohin er auf dieser Reyse gelangen wird, nach den Botanicis:/ worunter nicht allein die Professores auff Academien, praefecti Hortorum Illustrum, Medici, und allerhand Hortulani, sondern auch allerley Liebhaber der Gerten und Kräuter verstanden sein:/ fragen und dieselbe suchen, wie auch, was für Singular garten iedes ohrts vorhanden, observiren wirdt.

Zum 3en, soll er darnach trachten, uff was füglicher manier er in Ihre gute Kund: und freundschaft gerathen, and also zu Gegenwertiger und Künftiger freundschaft und Correspondentz gutes fundament legen möge.

Gegenwertig hat er 4tens mit denselben fleißigst zu Conferiren, und was für rariores so wol in gärten alß auf dem felde bey Ihnen zu finden, gründlich zu erforschen.

Nichtsdestoweniger zum fünfften, von jeglicher Ihrer observationes speciales tam quoad Herbarum Theoriam, quam quo ad praxim, Item Singularem plantarum culturam: tempus sationis & collectionis secundum influentias generales & speciales so viel muglick erforschen, Item die Structur der gärten mit sonderlichem fleiß adnotiren, und Unß allezeit davon Untertheingst referiren.

Endlich zum Letzten soll er auff Berühmte Chymicos and derselben Secretiores labores fleißig achtung geben, solche auf Unsere Kosten expisciren, undt Unß von Zeiten zu Zeiten Umbständliche nachricht unterthenigst schreiben.

Welches alles der offtgedachte Friedrich Clodius mit sonderer sorgfalt und geffißenheit in acht zu nehmen, und sol bey Unß er sonsten auff jedes Unser gnädigstes erfordern sich ohngeseumet und gehorsambst wieder einzustellen schuldig und gehalten sein.
Uhrkundtlich Gottorf d- 4ten May [1]653

APPENDIX B

Clodius's Political Mandate from Friedrich III, 28 April 1653

Source: Landesarchiv Schleswig-Holstein 7/1431, unfoliated

Nos Fridericus Dei gratia, Haeres Norwegiae, Dux Slesvici, Holsatiae, Stormariae et Ditmarsiae, Comes in Oldenburg et Delmenthorst etc. notum facimus cum praesentem fideliter Nobis dilectum et subditum nostrum Fridericum Clodium, ob certa Nos concernentia negotia in Angliam ablegaverimus, necesse Nobis visum esse, undique gliscentibus periculis, & itinerantium securitatem turbantibus, liberi commeatus literis sigillo et manu nostra roboratis, cum munire, ut eò feliciter demandatum sibi iter conficere possit. Quapropter omnes et singulos Magistratus, nec non cujusvis gradus milites, classium Praefectos ac Classarios, qui hisce compellantur, pro status conditionisvè ratione, amicè et benevolè rogatos volumus, a caeteris clementissimè postulamus, ut praefato Friderico Clodio non solum ubicunque locorum suae vel potestati, vel custodiae commisorum tam mari quam terrâ, unâ cum famulis et sarcinis rebusque necessariis, securum aditum et recessum praebent, verum etiam usu exigente commendationis hujus nostrae intuitu ipsum omni gratia, favoris et amicitiae genere complectantur ac illi patrocinentur.

Erit hoc Nobis apprimè gratum, operamque daturi sumus, ut ubi usus venerit, ea clementiae et benignitatis officia huic exhibita pari gratificandi promptitudine compensemus. In quorum fidem hisce authographo nostro munitis, sigillum nostrum apponi iussimus. Quae dabantur in arce nostra Gottorpiensi. 4. Cal. Maii Ano. 1653.

APPENDIX C

John Dury, "A Platforme of the Journeys undertaken for the worke of Peace
Ecclesiastical and other profitable ends" (undated)

Source: British Library, London, MS Sloane 654, fols. 249r-v

[. . .] 1. All rare Bookes. 2. all Inventions, and Feats of Practise in all Sciences. For bookes I will not only Cataloguise them, to know their Title and Contents in what Language soever it may bee, but also will see out how, & where they may bee purchased & chiefly, I will lay hold of MS that we may have either the Autographon, or the copy of them.

For Inventions and Industries, I will seeke for such chiefly as may advance learning and good manners in ye Universityes, Schooles & Commonweales: Next for such as may bee profitable to the health of the body, or the Preservations and Encrease of wealth by trades and mechanicall Industries, either by sea or Land, either in Peace or Warre.

Things to be elaborated are these:

1. A Tractat of Peace. 2. a Platforme of Correspondencye. For a Tractat of Peace I intend in mine ordinary studie, to Eclogate and Epitomize out of all authors who in severall language have written concerning meanes of Ecclesiasticall Pacification; that which already is perfeited to our hand, that we may know what yet remaineth undone; and necessary to bee taken in hand by us, for our present Estate.

For a Platforme of Correspondency I intend to describe it after I have observed all Circumstances and meanes requisite for it.

Things to be observed are these:

1. The proceedings & Inventions of the Reformators whom this latter time hath brought forth in Germany: yt wee may the thinges wherein they are thought to excell former ages and other societies which are these:

1. Some Extraordinary meanes to perfect ye knowledge & unearth the mysteryes of the Propheticall Scriptures.

2. Meanes to perfect the knowledge of the Orientall tongues, and to gaine abilities fitt to deale with the Jewes, whose calling is supposed to bee neere at hand.

3. Arts and Sciences Philosophicall, Chymicall & Mechanicall: whereby not only the Secrets of Disciplines are harmonically and compendiously delivered, but also the secrets of Nature are thought to be unfolded, so yt Gods wonderfull power, wisdom and goodness is to be seene more apparently in bodily things than ever heretofore.

[249v]

4. A Magicall Language wherby secrets may bee delivered and preserved to such as are made aquaint with it traditionally.

The frame of a Society and Corporation amongs themselves to make a perfect corporation of the ioint parts and uses, of all sorts of persons, skilled in all sorts of arts, and industries Rationall and Mechanicall.