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In the preface to 'The great instauration' (1620), Francis Bacon retells the biblical story of the Fall in terms more congenial to natural inquiry: Adam and Eve sinned by seeking moral, not 'pure and uncorrupted' natural, knowledge - and then further reassures his readers that even knowledge of what God has hidden from us does not constitute impiety: whereas of the sciences which regard nature, the divine philosopher declares that 'it is the glory of God to conceal a thing, but it is the glory of the King to find a thing out.' Even as though the divine nature took pleasure in the innocent and kindly sport of children playing at hide-and-seek, and vouchsafed of his kindness and goodness to admit the human spirit at that game¹ As is often the case, Bacon's metaphors were original, but his sentiments were not. This passage reflects rather than inaugurates a profound re-evaluation of curiosity begun in the mid-sixteenth century, which transformed it from grave vice, to peccadillo, to outright virtue. My aim here is not to chart this transformation, nor to show its liberating effects on early modern intellectual life.² Instead of examining the rehabilitation of curiosity, I propose to study its realignment in the field of vices and virtues, passions and interests, and the impact of that realignment on early modern science. That is, I want to analyze the emotional restructuring of early modern curiosity, and to show how this new-style curiosity shaped both the objects and subjects of early modern science. During this period, and in several European languages, the word 'curious' at once betokened a state of mind; a quality of things; and a kind of person. The sensibility of curiosity that united all three usages singled out certain objects for study, and prescribed that they be studied in a certain way: nature's 'more secret and abstruse' operations were preferred to 'those more gross and obvious ones'; 'a perfect knowledge of all Particulars' to 'the general Knowledge of Universals or abstracted Natures.'³

Those who probed these secrets and scrutinized these particulars conceived of themselves as a scattered fraternity - title page after title page addressed them as the 'curious' (or the 'inquisitive,' or the 'ingenious') of Europe - of diverse confessions, nationalities, and callings, but all alike in being elevated above the 'vulgar' by their tastes, their learning, and their outlook. That outlook was not simply or even primarily a Promethean passion to know, in defiance of the authority of custom, orthodoxy, or canon; the motto 'sapere aude!' flung in the teeth of tradition. Rather, it was a highly selective obsession for some very peculiar objects viewed in a very peculiar way; an obsession that is best understood (and was so understood at the time) as a form of insatiable, if esoteric consumerism.

In what follows, I shall argue for the historical mutability of the emotion curiosity and for the significance of that emotion in its distinctive early modern form for the investigation of nature in the seventeenth century. More specifically, I want to make sense of the seventeenth-century scientific

¹ Francis Bacon, 'The great instauration' (1620), in the *New Organon and Related Writings*, ed. Fulton H. Anderson (New York: Library of Liberal Arts, 1960), p. 15.

² See especially Hans Blumenberg, *Der Prozeß der theoretischen Neugierde* (Frankfurt am Main: Suhrkamp, 1988); also Carlo Ginzburg, 'High and low: the theme of forbidden knowledge in the sixteenth and seventeenth centuries', *Past and Present*, 73 (November 1976), pp. 28- 41.

³ Robert Hooke, 'A general scheme of the present state of natural philosophy, and how its defects may be remedied by a methodical proceeding in the making experiments and collecting observations. Whereby to compile a natural history, as the solid basis for the superstructure of true philosophy', in *The Posthumous Works of Robert Hooke*, ed. Richard Waller (1705), reprinted with an introduction by R. S. Westfall (New York: Johnson Reprint Corp., 1969), p. 6.

fascination with the intricate and the hidden, and to link that fascination with the self-image of the natural philosopher as lynx-eyed observer and as opponent of the vulgar. The remainder of this paper is divided into four parts. First, I analyze how curiosity came to be emotionally restructured in the early modern period, drifting from the pole of lust and pride to that of avarice. Second, I argue that this new sensibility oriented scientific investigation towards commodity-like objects, especially nature's finest workmanship and hidden secrets. Third, I turn to the subjects of curiosity, showing that their fastidious attention to detail and their horror of the vulgar also stemmed from the restructured sensibility of curiosity. Fourth, I conclude with some brief reflections on what a study of sensibilities can offer the history of science.

Curiosity realigned

A deep-rooted assumption concerning the uniformity of human emotions informs much of anglophone writing about remote times and places. Whether the brisk, matter-of-fact voice is that of anthropologist Edward Evans-Pritchard examining the witchcraft beliefs of the Azande, or that of historian Keith Thomas examining the witchcraft beliefs of early modern Europeans,⁴ the approach to the exotic is the same: no matter how outlandish the beliefs and ideas, the fears, desires, passions, and interests that underpin them can be handily subsumed under the commonsense categories of the here-and-now. Peoples of the then-and-there may think and conduct themselves shockingly otherwise, but there is no real Other when it comes to the realm of emotions. As Clifford Geertz remarks of Evans-Pritchard's style, it is just this confident assumption that even the most apparently alien culture will yield to the grid of commonsense that gives this genre of historical and anthropological writing its calming, transparent quality.⁵ I must, alas, muddy these clear waters in order to explain the transformation of curiosity in the early modern period. Although there is a kinship of descent and, no doubt, a resemblance of feeling between the curiosity castigated by St Augustine and that celebrated by Thomas Hobbes, they are not, I shall argue, of the same emotional species. I shall base my argument for their difference on the premise that the felt substance of an emotion depends to a significant degree on the company it keeps. The emotion classified next to, say, towering ambition and sexual jealousy, is in an important sense different from one bordering on envy and avarice, even though they may share the same name and a host of other, more substantive features. What we might call the structure of an emotion changes with its neighbors - not beyond all recognition, but enough to create new possibilities for the objects and attitudes that give an emotion outlet and outline. This is what happened to curiosity during the early modern period. Not only did it become respectable, even laudable, but it also shifted its position in the European map of emotions from a close proximity to lust and pride, to a similarly close relationship to greed and avarice. The two changes are not independent: as Albert Hirschman has shown, the interests, avarice foremost among them, steadily gained ground at the expense of the more violent and therefore unpredictable passions among moral theorists of this period.⁶ Insofar as curiosity was allied with the newly respectable interests as a subspecies of avarice, it, too, enjoyed an upswing in approval. But I am less concerned with

⁴ E. Evans-Pritchard, *Witchcraft, Oracles, and Magic Among the Azande* (Oxford: Oxford University Press, 1937); Keith Thomas, *Religion and the Decline of Magic* (New York: Macmillan, 1975).

⁵ Clifford Geertz, ed., 'Slide show: Evans-Pritchard's African transparencies', in *Works and Lives. The Anthropologist as Author* (Stanford: Stanford University Press, 1988), pp. 49-72. | am grateful to Shelly Errington for directing my attention to this beguiling essay.

⁶ Albert O. Hirschman, *The Passions and the Interests. Political Arguments for Capitalism Before its Triumph* (Princeton: Princeton University Press, 1977), part 1.

rehabilitation than with realignment and its consequences. In order to understand these latter, we must cast a brief glance still further backwards to the patristic and medieval Christian analysis of curiosity and its perils. The ur-text for all Christian commentaries on curiosity until well into the eighteenth century was Augustine's *Confessions*, which designated curiosity a variety of lust; more precisely, 'concupiscence of the eyes' (*concupiscentia oculorum*)⁷. The eye in question is the eye of the mind, made to stand for all knowledge gleaned from the senses, and its temptations are in Augustine's opinion considerably more dangerous than those of the eye of the body. These latter- a craving for light and beauty- at least fix upon the genuinely pleasurable, whereas the appetites of the mind's eye devour all novelty indiscriminately, the mangled corpse or theatrical spectacle as well as 'light, the queen of colours.'⁸ For Augustine, those who 'investigate the secrets of nature, which are irrelevant to our lives,' not to speak of those who traffic in sorcery, are morally on a par with ambulance chasers, all slaves to the 'love of experience' (*ad solam experientiam desiderata*). At best such curiosity is futile; at worst a distraction from God and salvation.

It is also the first and decisive step into the mortal sin of pride. Elsewhere in the *Confessions*,⁹ Augustine rails against the astronomers whose power to predict eclipses swells them with vainglory and removes them from God: 'The proud cannot find you [God], even though by dint of study [*curiosa*] they have skill to number stars and grains of sand Their conceit soars like a bird; their curiosity probes the deepest secrets of nature like a fish that swims in the sea' According to Augustine, the astronomers suffer from a deficiency of awe, absorbed more in self-congratulation at their own cleverness than in humble wonder at God's works. We shall return to this Augustinian association between a seemingly wonder and mute reverence below. Although curiosity rarely, if ever, made it into the several lists of the seven deadly sins compiled by medieval theologians, pride (*superbia*) often headed them, for pride fed ambition, and ambition ended in rebellion and heresy.¹⁰ This was a most damaging connection for curiosity, even though it retained its identity as a subspecies of lust for over a millennium. Bernard of Clairvaux, writing c. 1127, managed to combine both shadings of curiosity by instructing his monks that curiosity was the opposite of modesty, playing upon both bodily and intellectual senses.¹¹ The butt of Bernard's sternest reproaches is no longer the astronomers but Satan, testimony to how serious a fault curiosity has become: not only did Satan corrupt Eve by whetting her curiosity; his own catapulted him from heaven: 'The Seraphim set a limit to impudent and imprudent curiosity. No longer may you, Satan, investigate the mysteries of heaven or uncover the secrets of the Church on earth.'

The most exquisite punishment Bernard can conceive for Satan's crimes of curiosity is an eavesdropping variant on that of Tantalus. Satan, suspended in the air (Bernard's Satan has not yet taken up residence in Hell, dwelling in the wind-tossed space between Heaven and Earth, presumably in a pitiable state of perpetual motion sickness), can see the angels winging to and fro and conversing, but he cannot make out their conversations, try as he might. The parallel between the frustration of the bodily appetites of hunger and thirst, and that of the mental appetite of curiosity is clear. If anything, Bernard assimilates curiosity even more closely to the body than Augustine had done, rebuking the curious monk for 'feeding the appetites of his eyes and ears.'¹²

⁷ Augustine of Hippo, *The Confessions*, eds John Gibb and William Montgomery (New York: Garland, 1980; originally published Cambridge University Press, 1908), book x, ch. 35; cf. 1 John 2:16.

⁸ *Ibid.*, x, 34.

⁹ *Ibid.*, V, 3-4. For translations of longer passages, I have been aided by R. S. Pine-Coffin, ed., *The Confessions of Augustine* (Harmondsworth: Penguin, 1961).

¹⁰ Morton W. Bloomfield, *The Seven Deadly Sins* (East Lansing: Michigan State College Press, 1952), p. 75.

¹¹ Bernard of Clairvaux, *The Twelve Steps of Humility and Pride and On Loving God* (composed c. 1127), ed. Halcyon C. Backhouse (London: Hodder & Stoughton, 1985), p. 47.

¹² *Ibid.*, pp. 53, 47.

Accordingly, the virtues opposing the vice of curiosity are the corporeal ones of continence and, to a lesser extent, modesty.

What continence, bodily and mental, combats is the fragmentation of self and singlemindedness through the pursuit of ephemeral pleasures. Augustine addresses God: 'You command us to control our bodily desires 'Truly it is by continence that we are made us one and regain the unity of self [*collegimur et redigimur in unum*] which we lost by falling apart in the search for a variety of bodily pleasures.'¹³ Continence comes to the aid of self-mastery, self-discipline, unswerving attention, and memory of our duties, all of which are shattered by the lusts and appetites, curiosity included. In the grip of concupiscence, be it of the body or of the eye, we are passive and reactive. Augustine speaks of his own adolescent lusts in terms of an irresistible force, which 'swept me way over the precipice of my body's appetites, and plunged me in the whirlpool of sin.'¹⁴ This is not merely the voice of asceticism seconded by Platonism, for Augustine deems some sensory pleasures (for example, sacred music) relatively innocent. Rather, it is the loss of self-control that he dreads, and with it the loss of self *tout court*. This is the dynamic of lust for patristic and medieval moralists, a dynamic which curiosity shared by virtue of its location among the vices.

Augustine and Bernard of Clairvaux do not exhaust the medieval views of the moralists on curiosity, but they were representative and influential. Although examples and emphasis altered with theological and philosophical context, particularly in the twelfth to fifteenth centuries, the affinity of curiosity to lust and pride persisted.¹⁵ Scholastic theologians, beginning with Thomas Aquinas, tempered the condemnation of curiosity by pronouncing the human desire for knowledge natural and therefore good. Nonetheless, the authority of Augustine outweighed that of Aristotle by severely restricting the scope of this natural and innocuous drive to know. And with respect to its dynamic, Aquinas actually deepened the associations of curiosity and passivity by linking the former to bodily laziness and mental inertia.¹⁶ The changes that favored intellectual venturesomeness in the fifteenth and sixteenth centuries were several, gradual, and complex, and I cannot dwell upon them here.¹⁷ Instead, I want to juxtapose the full-blown early modern brand of curiosity with the Augustinian one, in order to throw their differences into relief. If there is a seventeenth-century spokesman of comparable stature to Augustine's on the topic of curiosity, it is perhaps Hobbes. Hobbes was by no means the first or the only thinker of the period not only to celebrate but also to redefine curiosity. However, he is arguably the most voluble on the subject. Curiosity figures prominently in all of his major works dealing with human nature, for he deemed it that quality which distinguishes man from beast, prior even to reason. It leads not only to inquiry into causes and effects, but also ultimately to language, and the ability 'by words [to] reduce the consequences he [man] findes to generall Rules, called *Theorems*, or *Aphorismes*.'¹⁸

However, for our purposes, it is not so much Hobbes' praise for the 'excellence' of curiosity as his psychological reclassification of it that is of interest. It is still subsumed under desires, but it is now opposed to bodily appetites, including lust: '... this is a curiosity [seeking effects] hardly incident to the nature of any living creature that has no other Passion but sensuall, such as are hunger, thirst, lust, and anger.' 'Desire' is of course an all-important

¹³ Augustine, *Confessions*, X, 29.

¹⁴ *Ibid.*, II, 2.

¹⁵ Medieval travel literature opens a particularly wide window on to shifting valuations of curiosity during this period: Mary B. Campbell, *The Witness and the Other World. Exotic European Travel Writing. 400-1600* (Ithaca and London: Cornell University Press, 1988), ch. 2; Christian K. Zacher, *Curiosity and Pilgrimage. The Literature of Discovery in Fourteenth-Century England* (Baltimore: Johns Hopkins University Press, 1976); Jonathan Sumption, *Pilgrimage. An Image of Medieval Religion* (London: Faber & Faber, 1975).

¹⁶ For a detailed treatment of Aquinas' view on, and scholastic ambivalence toward, curiosity, see Blumenberg, *Neugierde*, Pp. 129-34.

¹⁷ Jean Céard, ed., *La Curiosité à la Renaissance* (Paris: Société d'Édition d'Enseignement Supérieur, 1986); Blumenberg, *Neugierde*. Although curiosity steadily gained in respectability during the early modern period, ambivalence or even (in Bossuet's case) outright Augustinianism did not disappear. See, for example, André Godin, 'Erasmus: Pia/Impia Curiositas', in *Curiosité*, Céard, pp. 25-36; Françoise Charpentier, 'Les Essais de Montaigne: Curiosité/incuriotité', in *ibid.*, pp. 111-21; Patrick Brantlinger, 'To see new worlds: curiosity in Paradise Lost', *Modern Language Quarterly*, 33 (1972), pp. 355-69; and Jacques Bénigne Bossuet, *Traité de la concupiscence* (1731), eds Charles Urbain and E. Levesque (Paris: Editions Fernand Roches, 1930), ch. 8.

¹⁸ Thomas Hobbes, *Leviathan* (1651), ed. with introduction by C. B. Macpherson (Harmondsworth: Penguin, 1968), 1, v; see also Jeffrey Barnouw, 'Hobbes' psychology of thought: endeavors, purpose and curiosity', *History of European Ideas*, 10 (1989), pp. 519-45.

and nearly all-embracing category in Hobbes's psychology, for it is the perpetual motions of mind and body, our appetites and aversions, that keep us striving and, indeed, alive. Happiness lies in yearning, not in satisfaction. In this mechanics of thought and emotion, curiosity is not simply one of a host of desires, but rather the archetypal desire, for it is the nearest approximation of pure desire, a *perpetuum mobile* of the soul. Unlike the desires of the body, curiosity is distinguished 'by a perseverance of delight in the continuall and indefatigable generation of Knowledge, [which] exceedeth the short vehemence of any carnall Pleasure.'¹⁹

It is the insatiability of curiosity, as pure *conatus* or endeavor, that allies it with greed and avarice in the early modern period. 'The earlier dynamic of self-shattering passivity gives way to one of self-disciplined activity, all faculties marshalled and bent to the quest. 'The psychology of endeavor was of course peculiar to Hobbes, but the view of curiosity as closely akin to the voracity of the miser was not. Marin Mersenne, that scientific pen-pal *extraordinaire*, reached for the same analogies of movement and insatiability when he reflected upon curiosity:

...one could say there is a certain sort of current [*actuel*] pleasure, not found in possession, due to the movement which accompanies it and which belongs to current life [*la vie actuelle*], instead of which enjoyment resembles habit and repose, which is almost imperceptible. And thus we always desire to go beyond, such that acquired truths only serve as means to arrive at others: this is why we no more take stock of those we have than a miser does of the treasures in his coffers²⁰

Even those who disapproved of the cult of curiosity, like Descartes and Pascal, agreed that it was a restless, ravening emotion always intent on more; only a massive dose of the mechanical philosophy and a 'well-regulated soul' could cure 'the mind of those perpetually wrought upon [*travaillés*]' by an insatiable curiosity.²¹

In its inner logic, early modern curiosity mimicked greed rather than lust. Although lust and greed might still both be subsumed among the appetites, they differed in emotional dynamic. Unlike bodily lust, which aims at satisfaction, not perpetuation of desire, avidity is pure desire, darting from object to object, barely pausing to enjoy any of them.²² Early modern curiosity was similarly insatiable, never resting content in any single experience, even if it be the most perfect of its kind why the sequence of chords pleases us more, than the continuation of the same chord, 'even if it were the most melting in all of music,' as Mersenne put it.²³ Augustinian curiosity had also been of the flickering sort, but in the guise of distraction, of attention forcibly wrenched from prayer and contemplation to the inanities of a rabbit crossing his path, or a lizard twitching in the sun. As in the case of lust, the attention, and with it the self, is held captive, though not in definitely. In contrast, early modern curiosity raises self-mastery to the level of virtuosity, particularly with respect to the direction of attention, as we shall see below. Although greed can be just as obsessive as lust, it mobilizes means to ends with a ruthless efficiency and demands considerable self-control. Indeed, some seventeenth-century moralists were so struck by the power of greed, avarice, and kindred 'interests' to steel self-discipline, that they believed that these cooler, calculating interests could subdue the wilder passions of lust, ambition, and anger.²⁴

¹⁹ Hobbes, *Leviathan*, 1, iii, vi.

²⁰ Marin Mersenne, *Les Questions theologiques, physiques, morales, et mathématiques* (1634), reprinted in Mersenne, *Questions inouyes* (Paris: Fayard, 1985), qu. 23, p. 302.

²¹ René Descartes, *La Recherche de la vérité par la lumière naturelle* (post-1701), in *Oeuvres de Descartes*, eds Charles Adam and Paul Tannery (Paris: J. Vrin, 1966), x, p. 500.

²² -On greed and avarice and the money economy, see Georg Simmel, *The Philosophy of Money* (1907), trans. Tom Bottomore and David Frisby (London: Routledge & Kegan Paul, 1978), pp. 238-46.

²³ Mersenne, *Questions*, qu. 46, p. 397.

²⁴ Hirschman, *The Passions and the Interests*.

These then were the structural changes in curiosity during the early modern period, changes epitomized by the contrast between the emotional dynamic of lust and pride as opposed to that of greed and avarice: satisfaction versus pursuit; passivity versus activity; loss of self versus self mastery. Curiosity had in fact become a brand of consumerism, and its dynamics mirrored those of the trade in luxuries, itself a topic of considerable debate in the late seventeenth and early eighteenth centuries. As in the case of curiosity, insatiability was at the heart of the early modern analysis of luxuries, for it was the open-ended nature of the market for luxuries that at once appalled some writers, who feared decadence and corruption, and cheered others, who hoped for unlimited economic growth.²⁵ Moreover, both curiosity and the luxury market thrived on novelty, for today's luxuries—shoes, white bread, tea— were tomorrow's necessities, and today's knowledge staled just as quickly for restless curiosity. Both curiosity and the market in luxuries were by their nature insatiable, and this structural affinity was decisive for the chosen objects of curiosity in early modern science.

Curious objects

Because early modern curiosity was voracious, it would be natural to assume that it was also omnivorous; in different to its objects, so long as they were in steady supply. This, however, was not the case in natural history and natural philosophy, which had rather dainty tastes in this regard. In fact, the objects of curiosity in early modern science closely resembled luxuries — 'rare,' 'novel,' 'extravagant' are adjectives regularly paired with 'curious' — and some actually were luxuries. Mersenne defined curiosities as luxuries, as things not necessary to daily life, and underscored the link between the scientific curiosity of his day and the luxury trade when he likened man in all his eager curiosity about nature to

...a king in his kingdom, who, having been raised more splendidly and nourished more delicately, needs more things that his subjects and the rest of the people can do without; he has a number of officers, valets, and purveyors; thus the mind of man use all the senses, and dispatches them to forage among all that nature has established here below, in order to serve not only for his necessities but also for his pleasures and diversions [*plaisirs et contentemens*].²⁶

These 'pleasures and diversions' gathered by the 'valet' senses were most prominently featured—indeed, caricatured—in the 'cabinets of curiosities,' those miscellanies of 'Pictures, Books, Rings, Animals, Plants, Fruits, Metals, monstrous or Extravagant Productions, and Works of all Fashions; and, in a Word, all that can be imagin'd curious, or worth enquiry, whether for Antiquity or Rarity, or for the Delicacy and Excellency of the Workmanship,' in the words of a seventeenth-century tourist and connoisseur of cabinets.²⁷ It was just those aspects that made a thing "curious, or worth inquiry" that also certified them as luxury items. If the contents of the cabinets were a miscellany, displayed in hodge-podge fashion to heighten the impression of diversity,²⁸ they nonetheless were alike in being valuable by any and all economic measures. Value derived from precious materials (gold chains, Jewel-studded caskets); value derived from rarity or dearth (a stuffed armadillo from Brazil, an Eskimo kayak, an ox horn 6 inches in diameter); value derived from crystallized labor ('mysterious Padlocks,' a cherrystone carved with 100

²⁵ On the luxury debate, see André Morize, *L'Apologie du luxe au XVIIIe siècle* (1909), reprinted (Geneva: Slatkine Reprints, 1970).

²⁶ Mersenne, *Questions*, qu. 1, Pp. 212, qu. 46, p. 399.

²⁷ Maximilian Misson, *A New Voyage to Italy. With Curious Observations on several other Countries, as, Germany, Switzerland, Savoy, Geneva, Flanders, and Holland* (London, 1699), pp. 130-31. (The cabinet here described is that of the Count Mascardo in Verona.) On cabinets, see also Oliver Impey and Arthur MacGregor, eds, *The Origins of Museums. The Cabinet of Curiosities in Sixteenth and Seventeenth-Century Europe* (Oxford: Oxford University Press, 1985), which has a full bibliography; Paula Findlen, *Possessing Nature. Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley/Los Angeles: University of California Press, 1994); and Krzysztof Pomian, *Collectors and Curiosities. Paris and Venice, 1500-1800* [1987], trans. E. Wiles-Portier (Cambridge: Polity, 1990).

²⁸ Laura Laurenich-Minelli, 'Museography and ethnographical collections in Bologna during the sixteenth and seventeenth centuries', in Impey and MacGregor, *Origins of Museums*, pp. 17-23 esp. 19.

facets, Palissy-ware) — all these were amply represented in the cabinets, often to extravagance. The value these curiosities embodied was exchange, not use value, for even those constructed for use — for example Chinese lacquer bowls or South American feather mantles — were removed from the context in which they were meant to function, decontextualization being the sine qua non of the exotic.²⁹

Given that the emotion of curiosity had taken on the inner structure of acquisitiveness, it should come as no surprise that the objects of curiosity were valuable in the economic sense. In the cabinet of curiosities, the covetousness of greed and curiosity coincided. Thus the author of the *Encyclopédie* article ‘Curieux’ could barely distinguish these two varieties of insatiability, writing that ‘curiosity, that desire to possess [*envie de posséder*] which almost never knows any bounds, almost always ruins fortunes, and this is why it is dangerous.’³⁰ But there is another, less literal sense in which the early modern affinity of greed and curiosity picked out which were to be the objects of curiosity, a sense more integrally related to scientific investigation of the period. Although the cabinets themselves played at best an indirect role in these investigations,³¹ their aesthetic of rarity, variety, and, especially, ‘Delicacy and Excellency of the Workmanship,’ marked objects as worthy of inquiry as well as worthy of acquisition. It is never obvious just which phenomena amid all the blooming, buzzing confusion of nature merit scientific investigation; which phenomena will prove particularly revealing of the essence of things. This perplexity was never more acute than in the late sixteenth and seventeenth centuries, when the Aristotelian program of studying regular, commonplace phenomena~ ‘that which happens always or most of the time’ - was abandoned without a clear alternative by many, though not all, natural philosophers. A number of circumstances converged to thrust ‘all that is new, rare, and unusual’ to the forefront of scientific attention.³² The early modern psychology of curiosity reinforced this preference for the novel and the bizarre, and also channeled it toward the small, the intricate, and, above all, the hidden. Even those natural philosophers who largely resisted marvel-mongering, such as Descartes and Robert Hooke, were driven by the psychology of curiosity, as both analysts of and participants in that psychology, to embrace ‘nature’s secrets’ as prime objects of investigation.

In order to understand the scientific predilection for these wondrous objects, we must first understand the relationship between wonder and curiosity, and between both of these and scientific investigation. According to much early modern psychology, wonder and admiration were the fuses which ignited curiosity, and therefore the prime movers behind all philosophy, including natural philosophy. Descartes breathed new life into this Aristotelian commonplace (*Metaphysics*, 982b12-27) by making wonder the first of the passions, and the stimulus to all inquiry; Hobbes did likewise.³³ This coupling of wonder and curiosity contrasts sharply with Augustine’s pairing of wonder and reverent awe. For Augustine, the astronomers’ proud curiosity was due to a *lack* of wonder; for Descartes, curiosity was the *effect* of wonder. Without wonder, there would be no curiosity, and without curiosity, no science. This sequence is nicely illustrated in the opening passages of Newton’s 1671 letter to the Royal Society on his “New theory of light and colours,” describing his response to light shining through a prism:

²⁹ James H. Bunn, ‘The aesthetics of British mercantilism’, *New Literary Theory*, 11 (1979 80), pp. 303-21.

³⁰ M. Landois] ‘Curieux’, in Jean d’Alembert and Denis Diderot, eds, *Encyclopédie, ou Dictionnaire raisonné des sciences, des arts et des métiers* (Paris, 1754), IV, Pp. 577-

³¹ Lorraine Daston, ‘The factual sensibility’, *Jésés*, 79 (1988), pp. 452 -70.

³² Katherine Park and Lorraine Daston, ‘Unnatural conceptions: the study of monsters in sixteenth- and seventeenth-century France and England’, *Past and Present*, no. 92 (August 1981), pp. 20-54; Lorraine Daston, ‘The prehistory of objectivity’, in Allan Megill, ed., *Rethinking Objectivity* (Durham/ London: Duke University Press, 1994), pp. 37-63.

³³ René Descartes, *Passions de lame* (post-1699), art. LXXV; Hobbes, *Leviathan*, 1. vi.

It was at first a pleasing divertimento to view the vivid and intense colors thereby; but after a while applying myself to consider them more circumspectly, I became surprised to see them in an *oblong* form ... Comparing the length of this colored spectrum with its breadth, I found it about five times greater, a disproportion so extravagant that it excited me to a more than ordinary curiosity of examining from whence it might proceed.³⁴

Just what excited wonder was a matter for some debate, but beauty, rarity, novelty, diversity, strangeness, and ignorance of causes turned up on almost everyone's list.³⁵ Wonder need not be confined to the natural; much of mannerist art of this period aimed to evoke the same gasp of admiration and surprise, and by the same means, enlisting the rare, the bizarre, and the richly various. It is no accident that the cabinets of curiosities favored mannerist art, above all anamorphic and trompe d'oeil paintings, and displayed these works promiscuously next to bits of landscape marble, branching trees of coral, seashells, and other 'works' of nature.³⁶ What curious art and curious nature shared was exquisite workmanship, echoing the root sense of 'curiosity' (from the Latin *cura*) as painstaking, even excessive care or artistry.³⁷ Nowhere was the boundary between the natural and the artificial more blurred than in the case of such objects, and some of the oddest items in the cabinets made merry with this ambiguity between human and natural workmanship.

But the curiosity of exquisite workmanship overflowed the cabinets into the treatises of natural history and natural philosophy. Nature's ingenuity, conceived as exacting, involved construction, especially in miniature, was displayed to better advantage in some objects than in others, and these were the objects pored over and exclaimed over. Often, the analogy between a curious work of art and a curious work of nature is quite explicit, as when John Ray compared 'those minute Machines endued with life and motion' to '[a]ny work of Art of extraordinary Fineness and Subtlety, be it but a small Engine or Movement, or a curious carved or turned Work of Ivory or metals ... beheld with admiration, and purchased at a great Rate, and treasured up as a singular Rarity in the *Museums* and Cabinets of the Curious.³⁸ The vogue for microscopic observations, and above all the ornately aestheticized language in which they were reported,³⁹ owed much to the curiosity of the tiny and the intricate.

There was a psychological as well as an etymological link between this kind of miniaturist curiosity and that of pure, insatiable desire. As Hobbes remarked, the dissection of an object into its minute parts, be it by the eye of the body or by the eye of the mind, prolongs and extends the state of curiosity, by disassembling a single object into many.⁴⁰ Here Hobbes deliberately transmutes 'enjoyment of a desire' into the desire itself, moving from one tiny part or labyrinthine convolution on to another, never at rest but still fixed upon the selfsame object in all its multiplicity. The fittest objects of curiosity were those that were in this sense bottomless, matching insatiable desire to inexhaustible detail. Fine workmanship on a small scale specified one class of curious objects

'worth enquiry'; 'hidden' or 'secret' properties of nature specified another. Given the epistemological gloom which settled over many early modern philosophers concerning the infirmities of human senses and intellect, it is startling to find many of the very same thinkers recommending that 'the curious Sight' follow nature 'Into the privatest recess/Of her imperceptible

³⁴ Isaac Newton, "A new theory of light and colours" (February, 1671/72), in H. Thayer, ed., *Newton's Philosophy of Nature* (New York: Hafner, 1953), p. 68.

³⁵ See David Summers, *The Judgement of Sense. Renaissance Naturalism and the Rise of Aesthetics* (Cambridge: Cambridge University Press, 1987), pp. 27, 37, 253. 311 12, for examples drawn from esthetics; and John Baptista Porta [Giambattista della Porta], *Natural Magick* (1588) (London, 1658; repr. New York: Basic, 1957), p. 4, concerning ignorance of causes.

³⁶ John Shearman, *Mannerism* (Harmondsworth: Penguin, 1967), pp. 1 12,

³⁷ For sixteenth-century French definitions, see Céard, *Curtosité*, pp. 7 95 and Zacher, *Pilgrimage*, p. 40, for somewhat earlier but convergent English definitions.

³⁸ John Ray, *The Wisdom of God Manifested in the Works of the Creation*, 2nd edn (London, 1692), pp. 158-59.

³⁹ For example, Robert Hooke's description of a magnified blue fly in his *Micrographia* (London, 1665), p. 184.

⁴⁰ Barnouw, 'Hobbes' psychology', p. 539-

Littleness.⁴¹ What was the attraction of the subvisible and the invisible — Bacon’s latent configurations, Descartes’ microscopic mechanisms, Boyle’s hidden springs and principles, Newton’s active principles ~ for natural philosophers pessimistic about our ability even to see what was dead smack in front of us? Curiosity, in both its natural and social forms, had a powerful affinity for delving and prying into secrets. Although the social probing of gossips, busybodies, and jealous spouses remained a matter for blame well into the Enlightenment,⁴² the revelation of nature’s secrets- Bacon’s game of hide-and-seek with God~ took on an ever more praiseworthy tinge in the sixteenth and seventeenth centuries.⁴³ A natural philosophy of secrets stood outside scholastic natural philosophy, the latter having steadfastly refused to speculate about ‘occult’ (i.e. hidden) virtues like magnetism, sympathies and antipathies between animals and plants, or astral influences; not on the grounds that these did not exist, but rather that nothing certain could be known about things inaccessible to the senses. All secrets partook of this important feature of occult virtues, namely that some or all observers were ignorant of their causes.

Ignorance of causes was also a prime component of wonder, and a stimulant to scientific curiosity, as Hobbes and Descartes believed. This brand of wonder had been decoupled from its originally religious context, in which the wonder of ignorance had been the hallmark of the marvelous and the miraculous. An event qualifies as a marvel when only a select few know its causes; as a miracle, when no one does.⁴⁴

The proper accompaniment to this sort of wonder was reverential awe, not presumptuous curiosity, as we have seen with Augustine’s rebuke to the astronomers. But early modern wonder stimulated rather than stifled curiosity, even though it was still an acknowledgement of ignorance. Shakespeare caught the drift of things to come when in *All’s Well that Ends Well* (composed around 1600) he has the courtier Lafew remark apropos of an astonishing cure: “They say miracles are past; and we have our philosophical persons to make modern and familiar, things supernatural and causeless.” (II, iii)

For these ‘philosophical persons,’ curiosity followed hard on the heels of wonder born of ignorance, driving them to pursue the hidden and the secret at the expense of the visible and the obvious. Some secrets, especially those deriving from spiritual and demonic magic, enjoyed an aura of power and were associated with courtly circles,⁴⁵ but the quest for secrets also flourished in academic settings which preferred experiments of light to those of fruit, and which tended to broadcast rather than to hoard secrets. Even those natural philosophers suspicious of the curious aesthetic of the cabinet, most notably Descartes, and, to lesser extent, Hooke, succumbed to the lure of the hidden. Robert Hooke, for example, disqualified logic from significant role in natural philosophy because it could not penetrate to ‘the Kinds of secret and subtile Actors, and what the abstruse and hidden Instruments there made use of’; the image of buried treasure and hidden jewels recurs like a motif.⁴⁶ Because nature’s secrets provoked wonder, and wonder in turn provoked the curiosity of causes, they became prime objects of early modern scientific inquiry.

The curious subject

Early modern curiosity, allied with greed and avarice on the one hand and

⁴¹ Abraham Cowley, ‘To the Royal Society’, in Thomas Sprat, *History of the Royal Society* (1667), eds Jackson I. Cope and Harold Whitmore Jones (St Louis: Washington University Press, 1958), n-p. (dedicatory ode).

⁴² (Chevalier de Jaucourt), ‘Curiosité’, in *Encyclopédie*, a’ Alembert and Diderot, IV, pp. 577-78.

⁴³ On the tradition of nature’s secrets and especially the metaphor of the hunt in early modern natural philosophy, see William Eamon, *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture* (Princeton: Princeton University Press, 1994), pp. 269-300.

⁴⁴ Thomas Aquinas, *Summa theologica*, 1a, 105.6-8; *Summa contra gentiles*, III, 98-107.

⁴⁵ Findlen, *Museums*, pp. 221-24, 346-52; Eamon, *Science*, p. 221- 29; Ginzburg, ‘High and low’, p. 37; Porta, *Magick*, preface.

⁴⁶ Hooke, ‘General scheme’, pp. 6, 12;

preface to the *Saggi di naturali esperienze fatte nell’ Accademia del Cimento* (1667), in *The Experimenters. A Study of the Accademia del Cimento*, ed. W. E. Knowles Middleton (Baltimore and London: Johns Hopkins University Press, 1971), p. 89.

with wonder on the other, thus selectively directed scientific attention to some objects rather than others: rarities, exquisite workmanship both natural and artificial, and, above all, 'secrets' and the sub-sensible. It was not the only force favoring these objects, but it was a powerful one. Nor did its influence stop at the objects of early modern science. It also saturated the subjects of that science, in the ways in which they studied these objects and carved out an identity for themselves.

The sensibility of curiosity was intimately related to its choice objects, and to the affinity between acquisitiveness and inquisitiveness forged by early modern curiosity. This is a sense of intellectual property quite distinct from that of patents and copyrights. It is the property acquired by intense and minute scrutiny of an object; the sort Joseph Addison conferred upon his 'Man of Polite Imagination,' whose attentiveness gives him 'a Kind of Property in every thing he sees, and makes the most rude and uncultivated Parts of Nature administer to his Pleasures.'⁴⁷ Wonder and curiosity working in tandem created this proprietary stare. Wonder, whatever its source, caught the attention, and curiosity riveted it. Even Bacon, uneasily ambivalent about wonderstruck curiosity in many respects, acknowledged its essential role as bait and motivation: 'by the rare and extraordinary works of nature the understandings excited and raised to the investigation and discovery of forms capable of including them.'⁴⁸ But there was many a slip twixt excitement and discovery, and stamina as well as a flash of interest was required of scientific curiosity. Curiosity must keep the gaze glued to the object of observation, when boredom or distraction might have lured it elsewhere.

This power to awaken, hold, and even deepen attention was what made curiosity such an indispensable part of the militant empiricism of late seventeenth-century natural philosophy. I have argued elsewhere that this militant empiricism stemmed from an abiding distrust of Aristotelian generalizations and natural kinds.⁴⁹ Its tendency was to emphasize differences over similarities, splintering classes of phenomena into individuals, and individuals into component parts. The observation reports of these empiricists are notoriously prolix, but they had to be, for who could tell which detail would turn out to be significant? Fearful of excluding anything, they strained every nerve to record everything. The feats of concentrated attention required were herculean, and the added relish of rarity, novelty, and other sparks of wonder helped sustain them for a small, select class of objects.

But even those natural philosophers and natural historians who wearied of the exotic and the anomalous subscribed to a psychology which forced them to treat the prosaic and the common as if it were foreign and extraordinary. The botanist Nehemiah Grew tried without success to include 'not only 'Things strange and rare, but the known and common amongst us' in the Royal Society 'Repository' (as its cabinet was called), certain that these ordinary things would 'yield a great abundance of things for any Man's reason to work upon.'⁵⁰ Hooke however realized that reason unprovoked by curiosity would never bestir itself, and tried the opposite tack of making the common rare, and the domestic exotic, in the express hope of sharpening attention by engaging first wonder, and then curiosity:

In the making of all kinds of Observations or Experiments there ought to be a huge deal of Circumspection, to take notice of every least perceivable

⁴⁷ Joseph Addison, *The Spectator*, 411 (21 June 1712); quoted in Walter Houghton, 'The English virtuoso in the seventeenth century', *Journal of the History of Ideas*, 3 (1942), 51-73, 190-219.

⁴⁸ Bacon, *New Organon*, 1, 29.

⁴⁹ Lorraine Daston, 'The cold light of facts and the facts of cold light: the transformation of the scientific fact, 1600-1750', *EMF: Studies in Modern France* (in press).

⁵⁰ Nehemiah Grew, *Musaeum Regalis Societatis Or a Catalogue & Description of the Natural and Artificial Rarities Belonging to the Royal Society and preserved at Gresham College* (London, 1681), preface, n.p. On the failure of Grew's plans to make the repository more ordinary, see Michael Hunter, 'The cabinet institutionalized: the Royal Society's "Repository" and its background', in Impey and MacGregor, *Origins of Museums*, pp. 147-58.

Circumstance... And an Observer should endeavour to look upon such Experiments and Observations that are more common, and to which he has been more accustom'd, as if they were the greatest Rarity, and to image himself a Person of some other Country or Calling, that he had never heard of, or seen the like before: And to this end, to consider over those Phenomena and Effects, which being accustom'd to, he would be very apt to run over and slight, to see whether a more serious considering of them will not discover a Significancy in those things which because usual were neglected.⁵¹

This strategy of estrangement in order to provoke curiosity and heighten attention had some surprising consequences for scientific inquiry. Because habit stifles curiosity and blunts the edge of attention, Hooke prefers the descriptions of novices to seasoned artisans where trades and crafts are concerned. Furthermore, he recommends that experiments be replicated by others in altered circumstances not so much to test the robustness of the effect or to detect fraud, but rather to direct the fresh attention of another observer to the minuscule but potentially crucial details any single observer might miss.⁵² Above all, attention was hard work. Seventeenth-century natural philosophers regularly paired 'inquisitive' with 'industrious'; 'attention' with 'diligence.' By the mid-eighteenth century, it had become the moral criterion by which to distinguish the serious savant from the frivolous amateur, for only the former was capable of converting 'noble curiosity' into 'work and continued application' by 'use of attention.'⁵³

This focused, active curiosity, intent upon its object and tense with the effort of unblinking attention, contrasts sharply with the passive, distracted curiosity of Augustine. It is avid and insatiable like greed, yet nonetheless selective in its objects, which must pass through the filter of wonder. Some of those objects are coveted because they are luxuries, as in the case of the contents of the cabinets; some are coveted as if they were luxuries, similar in the aesthetic that prizes them and the psychological dynamic that pursues them. In the case of scientific objects, the ethos of meticulous observation and description combined with this psychology of curiosity not only to study wonders, but also to study the commonplace as if it were wondrous. The unswerving, penetrating attention scientific investigation was thought to require slackened without curiosity, and curiosity was triggered by wonder. Attention screwed to this virtuoso pitch amounted to intellectual possession, Addison's 'property 'in all that is seen. The lust of the eye had become the greed of the eye, a greed deemed essential to a certain kind of science by its foremost practitioners.

When Hooke tried to turn wonder from rare objects to common ones, he invoked a contrast fundamental to the self-image of the early modern natural philosopher, that between the curious elite and the vulgar mob. His 'Philosopher Historian' must abandon the 'common Opinion of the World 'in order to understand nature aright, replacing the prejudiced 'Eye of the Vulgar'; with the 'attentive, grave and serious' eye of the trained observer.⁵⁴ Hooke himself had cause to know the price exacted by the vulgar from the curious in revenge for such condescension: he was the mortified model for Sir Nicholas Gimcrack in Thomas Shadwell's satire *The Virtuoso* (1676), who in the course of the play is robbed, cuckolded, and made to exclaim, "His below a *Virtuoso*, to trouble himself with Men and Manners. I study Insects.'

Yet despite the risks of satire, scorn, or even social ostracism, the curious persisted in their self-conscious and superior distinction from the vulgar.⁵⁵

⁵¹ Hooke, 'General scheme', pp. 61-62.

⁵² *Ibid.*, p. 62.

⁵³ (Chevalier de Jaucourt), 'Curiosité', pp. 578.

⁵⁴ Hooke, 'General scheme', pp. 27, 63.

⁵⁵ See Francois Poulain de la Barre, *De l'Education des dames pour la conduite de l'esprit* (Paris, 1679], pp. 159-60, on the social risks of gainsaying vulgar opinion.

Curiosity chose just those objects unattainable to the vulgar: at first, the rare and precious bespeaking the privileges of wealth and rank; but increasingly, the hidden secrets of nature bespeaking the privileges of knowledge. ‘The two sorts of privileges were sometimes blurred, as when Giambattista della Porta spoke of reserving the choicest secrets of his *Magia naturalis* (1588) ‘for the worthiest Nobles, which should ignorant men ... come to know, they would grow contemptible and undervalued.’⁵⁶ Profanation through publication was already a well-worn theme in the sixteenth century,⁵⁷ one that lingered well into the seventeenth: for example, John Evelyn, FRS, scrupled to publish his essays on painting and paper-making lest they become sullied “by prostituting them to the vulgar.”⁵⁸ However, it is a commonplace among historians of the Scientific Revolution that in the course of the seventeenth century natural philosophers became ever more willing to publish, trumpeting a new doctrine of openness in scientific communication.⁵⁹

I would like to suggest that neither secrets nor exclusiveness were entirely abandoned. It is true that hoarding of information, deliberately obscure language, and pointed references to the nobility of objects and audience were all on the decline in the latter half of the seventeenth century, though one can find examples of all of the above in the works of even the most prominent figures.⁶⁰ It is also true that the Republic of Letters, with natural philosophy as its foremost province, cross-hatched Europe with contacts between learned societies and correspondents of different religions, nationalities, and social conditions,⁶¹ and that these contacts were elevated to an article of faith in manifestos of the period.⁶² But it is not true that these innovations eliminated exclusion or secrets from natural philosophy. Indeed, just because natural philosophers had become such a motley crew by all seventeenth-century measures, the need for some such principle of mutual recognition and group solidarity was acute.

This is why the contrast of the curious and the vulgar was repeated like a refrain in the seventeenth-century scientific literature. This motif was not, to be sure, monopolized by the natural philosophers; it surfaces in much learned writing of the period, especially that of a radical cast. It even had artistic and literary variants: convoluted allegories and anamorphic paintings that only the cognoscenti could decipher.⁶³ But the natural philosophers gave it a distinctive turn by linking it with knowledge and ignorance of hidden causes. Mersenne remarked loftily of the hidden causes of magnetism and other attractions that ‘these qualities are only hidden [*occultées*] to the ignorant, for the learned know the origins of such actions, that the vulgar call *sympathy* and *antipathy*, and show that that which is called *occult*, is evident to them.’⁶⁴ We have already heard Hooke on the subject of the curious and the vulgar. Because vulgarity was deployed in a social strategy of distinction and exclusion, its meaning was protean, even contradictory, as occasion demanded. For example, sometimes it was ‘vulgar’ to inquire into the utility of an experiment; sometimes it was ‘vulgar’ not to do so. Even if natural philosophers were not noble, nor even gentlemen, their knowledge of nature’s secrets was the password that separated them from the vulgar and united them with one another.⁶⁵ The revelations of natural philosophy, particularly on the subject of hidden causes, remained esoteric knowledge even after publication, for it was a badge of social identity for a group that was otherwise inchoate.

⁵⁶ Della Porta, *Magick*, preface, n.p.

⁵⁷ Roger Chartier, ed., ‘The practical impact of writing’, in *A History of Private Life*, in *Passions of the Renaissance*, trans. Arthur Goldhammer (Cambridge, MA: Harvard University Press, 1989), pp. III 59, esp. 123-24.

⁵⁸ Quoted in Houghton, ‘Virtuoso’, p. 205.

⁵⁹ William Eamon, ‘From secrets of nature to public knowledge: the origins of the concept of openness in science’, *Minerva*, 23 (1985), pp. 321-47.

⁶⁰ Daston, ‘Cold light’.

⁶¹ Lorraine Daston, ‘The Ideal and reality of the republic of letters in the Enlightenment’, *Science in Context*, 4 (1991), pp. 367-86.

⁶² For example, Sprat, *History*, pp. 57-64.

⁶³ Shearman, *Mannerism*, p. 161; Ernest B.

Gilman, *The Curious Perspective: Literary and Pictorial Wit in the Seventeenth Century* (New Haven and London: Yale University Press, 1978), pp. 40-44.

⁶⁴ Mersenne, *Questions*, qu. 22, pp. 299-300.

⁶⁵ Natalie Zemon Davis, ‘Proverbial wisdom and popular errors’, in *idem*, *Society and Culture in Early Modern France* (London: Duckworth, 1975), pp. 227-67.

The ultimate, ironic result of this harping on nature's secrets was to sever the bond between wonder and curiosity that had drawn natural philosophers to hidden causes in the first place. Wonder, aroused by the ignorance of causes, engaged the curiosity of the puzzled observer, and was thus the fountainhead of science. The more obscure the causes, the more intense the wonder and the curiosity required to ferret them out. But by associating ignorance with vulgarity, the seventeenth-century natural philosophers gradually dragged the wonder of ignorance into disrepute. Instead of inflaming curiosity, wonder doused it in the vast majority of onlookers. In his *History of the Royal Society* (1667), Thomas Sprat reprimanded Pliny and other ancient natural historians for appealing to the wondrous: 'our admiration [for such wonders], proceeding from our ignorance, ...stops the severe progress of Inquiry: Infecting the mind, and making it averse from the true *Natural Philosophy*.'⁶⁶ This is a far cry from the views of Hobbes and Descartes only a decade or so before, and already a long stride in the direction of David Hume's scorn for wonder as the hallmark of peasants, barbarians, women, and children; proof positive of their ignorance and credulity.⁶⁷ Unyoked from curiosity, wonder once again belonged to Augustine's humble of heart, but as stigma rather than honor.

* * *

I have charted the drifting location of curiosity within the field of emotions during the early modern period in order to make two points: first, that emotions can migrate in this sense, altering both their character and expression; and, second, that in some cases the emotions and their movements can be significant for the study of nature. There are obviously knotty problems of evidence surrounding the first point, and still knottier problems of justification surrounding the second. Concerning the first, those who object to 'reading the minds' of historical actors will surely balk at reading their hearts, if only on epistemological grounds. If we cannot fathom the feelings of our contemporaries, even our intimates, how can we hope to do so on the basis of the scant traces of the historical record? I acknowledge these difficulties, but do not believe them to be incapacitating. I have focused on the collective rather than the individual subject of emotion, relying upon the psychology of the day as a description of that collective sensibility, and cross-checking that description against recorded conduct. Although I recognize a difference in degree, I do not see one of kind between the usual sort of inferences from texts to state of mind that are the stuff of intellectual history (not to speak of *histoire des mentalités*), and those similar inferences that support emotional history.

I believe these methodological risks are worth taking because of how a history of sensibilities might deepen the history of science, helping to answer old questions — for example, why scientists study what they do when they do. It also allows us to pose new ones~ for example, how intellectual work is saturated with moral, emotional, and aesthetic elements at a collective, not just biographical level. We are heirs to a late nineteenth-century view of intelligence as neatly detached from emotional, moral, and aesthetic impulses, and to a related and coeval view of scientific objectivity that branded such impulses as contaminants. Both of these views have left a deep imprint in science studies.

⁶⁶ Sprat, *History*, pp. 90-91.

⁶⁷ David Hume, 'On miracles', in *idem, An Enquiry Concerning Human Understanding* (1748), ed. Charles W. Hendel (Indianapolis: Library of Liberal Arts, 1955).

Neither the sociology of science nor biography has returned sensibility to the life of the mind. The sociology of science, insofar as it descends from the level of social structures to that of psychological structures, relies for its analysis largely upon a calculus of self-interest, strategically deployed to the end of discipline, or career-building. Even the sociology of Robert Merton and his followers, which did attend to the role of cultural and professional values in supporting and sustaining science, confined these elements to the realm of motivation. A fervent desire to glorify God through the study of His works might impel a seventeenth-century English philosopher to take up natural philosophy, just as an equally fervent desire to win the acclaim of a select circle of colleagues might impel a twentieth-century counterpart, but neither motive carries any specific implications for which objects are studied and how in either period. Biography does carry such implications, but ones so welded to the contingencies and idiosyncracies of the individual that they are of little apparent import for a collective sensibility pursuing a shared ideal of science. What a history of sensibilities might contribute to the history of science is more than an enlarged repertoire of motives and more than prosopography. It would lodge scientific activities firmly within a moral economy that dignifies some objects as worthy of study at the expense of a great many others; that trusts some kinds of evidence and rejects other sorts; that cultivates mental habits, methods of investigation, and even characters of a distinctive stamp. The moral economy is normative in that it works by infusing these choices with value, positive and negative, but it is normative at the level of meta physics and epistemology — these objects and that evidence — rather than at the level of mores. Like values, meanings, and other bearers of culture, the moral economy hovers between the structures of sociology and the individuals of psychology; it exists in the collective psyche. It cannot dictate the products of science in their details, but it is the framework that gives them coherence and value.

The curious sensibility constructed such a framework of moral, aesthetic, and emotional elements for early modern science, one which singled out objects, subjects, and stance: strange objects (or common ones estranged) studied with every-nerve-strained attention by people often united only in their taste for such objects and their cultivation of that stance. In the shifting field of emotions, both virtuous and vicious, the tie that bound curiosity to rapacious greed and open-mouthed wonder eventually loosened, and by the end of the eighteenth century, curiosity was almost inseparable from the adjective ‘disinterested,’ an emotional and moral valence of a sterner and cooler sort. But in the late seventeenth century, curiosity was keenly interested, in every sense of the word: ‘the desires are carried forth after new possessions – the ey [sic] is never satisfied with seeing.’⁶⁸ In the desire for ‘new possessions,’ we recognize the febrile consumerism that has defined capitalist relations to commodities ever since, a St Vitus’ dance to the inexorable rhythms of fashion and the luxury trade. Although we habitually oppose the deliberations of science to the convulsions of the market, perhaps the *prestissimo* pace of novelty upon novelty that drives both fashion and science has a common, seventeenth century source in the insatiable eye.

⁶⁸ John Spencer, *A Discourse Concerning Prodigies*, 2nd edn (London, 1665), a5 r.