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Tradition and Innovation in Early Modern Natural Philosophy: Jean Bodin and Jean-Cecile Frey

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*Traditional natural philosophy with its bookish methods and basic indebtedness to Aristotle harbored innovations of many different kinds in the late Renaissance. I compare the modes of innovation and of adherence to tradition in the *Universae naturae theatrum* (1596) of Jean Bodin, who worked outside the university although his work was cited by German professors, and in the university teaching of Jean-Cecile Frey (active in Paris 1618–31). I argue that authorial self-presentation and ideas about the proper relation of philosophy and religion played crucial roles in making innovations palatable or not in different university contexts.*

Introduction

It is now well known that traditional natural philosophy, with its bookish methods and its Aristotelian premises, survived much later into the seventeenth century than was once thought (see, most recently, Sorell 1993). Scholars also agree that "Aristotelianism" never was the rigid and static system that its vociferous early modern opponents accused it of being (Schmitt 1983). Rather, Edward Grant has suggested, Aristotelianism owed its longevity to its adaptiveness and inclusiveness (Grant 1978). Medieval scholasticism itself generated a number of major, divergent schools of thought (like Averroism, Thomism, and nominalism) and a constant stream of new interpretations and

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discussions of canonical texts and questions. During the Renaissance "Aristotelianism" successfully absorbed a much wider range of challenges: a new interest in pedagogy and in typically humanist disciplines (like ethics, rhetoric, or history); a vast number of newly recovered ancient sources, from late antique commentaries on Aristotle to many non-Aristotelian philosophies (e.g., pre-Socratic, platonic and Neoplatonic, hermetic, Stoic, Epicurean, and skeptical); and new observations of the natural world which often entailed modifying received theories—from accounts of the new world which disproved the ancient notion of the uninhabitability of the torrid zone, to Tycho Brahe's data on comets and the conclusion that they were superlunary phenomena (Ariew 1992a). Thus it was possible, and even usual, for traditional natural philosophers to "innovate"—by criticizing earlier positions, by integrating previously unknown observations and theories. At the same time, however, university statutes and school curricula continued to assert, long into the seventeenth century, the single authority of Aristotle, even explicitly forbidding any deviation from "common opinion" (see the case of the Jesuits in Ariew 1992b). Notorious condemnations (Patrizi in the 1590s, Villon and Bitaud in 1624, Galileo in 1633), imprisonments (Campanella) and a few executions (Bruno in 1601, Vanini in 1619) served as vivid reminders that there were limits to acceptable innovation and dangers involved in calling oneself, or being considered, an "innovator."

What are some of the ways in which traditional natural philosophers innovated, inside and outside the universities, in the late sixteenth and early seventeenth centuries? How do these "traditional" innovations differ from the "real" ones—those which prompted serious condemnation or which are acclaimed as ushering in the "scientific revolution"? Why did some new ideas warrant their authors the title of *novatores* and attract the ire of the university philosophers and sometimes higher authorities, while others were quietly advanced and seriously debated by those very same "conservatives"? How do differences in the kind, the number, and the "gravity" of attacks on received opinion, on the one hand, and differences in the institutional affiliations and self-presentations of their authors, on the other, contribute to the construction of "innovators" and "traditionalists"? These are the kinds of questions I would like to address by comparing the attitudes toward and practices of innovation in two figures whom I would identify as traditional natural philosophers, but innovative ones: Jean-Cecile Frey (15??–1631), a professor of philosophy at the University of Paris between 1618 and 1631, self-proclaimed Aristotelian who nonetheless introduced all kinds of noncanonical topics and theories into his courses;

and Jean Bodin (1529–96), most famous in his day and since as a political philosopher and demonologist, who, as an outsider to the university, delighted in attacking Aristotle, and yet whose mode of innovation followed a perhaps less threatening, medieval pattern of offering new answers to old questions.

The comparison between Bodin and Frey highlights the role of authorial self-presentation, as distinct from actual challenges to tradition, in making innovations palatable to the universities. Bodin boasted of his hostility to Aristotle, although he remained Aristotelian in fundamental ways: as a result he was ignored in French universities, and those who commented on his natural philosophy, Mersenne and Scipion Dupleix in France and university philosophers in the German area, criticized him for his attacks on Aristotle (while at the same time, in the case of the German readers, accepting other aspects of his work). Conversely, Frey's extended intellectual and social interactions with the culture of curiosity, with people and interests generally thought to have been separate from and rejected by university orthodoxy, attest to the expansiveness of that orthodoxy to innovations from inside. As long as you pledged allegiance to Aristotle, as Frey did in his "Sieve of the philosophers," refuting point by point many of the *novatores*, almost anything you suggested was fine, it seems, but if you took pride in virulent attacks against the Philosopher, even minor criticisms were not acceptable.

Furthermore, the comparison between Bodin and Frey reveals the role of specific circumstances, geographical and chronological, in determining the acceptability of various innovations. For example, much of Bodin's natural philosophy was integrated into German university teaching during the early seventeenth century, but nothing at all into the French. Or, during the half-century separating Bodin from Frey, some new positions, like Copernicanism, became more acceptable, while others (e.g., Bodin's corporeal and immortal souls) became less so. I will argue, in particular, that the relation considered appropriate between philosophy and religion was a key factor in this variability. French university philosophers maintained a sharp demarcation between the two, to maintain their independence from an increasingly rigid Counter-Reformation theological faculty, while other traditional natural philosophers, working outside the university or in a Protestant tradition, explicitly mixed natural philosophy with natural theological and apologetic agendas. Thus Bodin's natural theological arguments were best received in German (and Protestant) universities. Bodin seeks a new solution to the traditional problem of reconciling reason and faith, since both philosophy and theology have changed since the

medieval syntheses; Frey, on the other hand, scrupulously ignores biblical authority and religious dogma in his new kind of "curious" philosophy.

Jean Bodin, Traditional Innovator

Jean Bodin's work on natural philosophy is a one-volume encyclopedia or *Theater of All of Nature*, published in 1596, the year of his death, and composed in 1590, probably from readings begun much earlier, following the precepts of his own *Method for the Easy Comprehension of History* of 1566, to keep a notebook of natural commonplaces throughout one's readings (Blair 1992, more generally Blair 1990). Bodin motivates his study of the natural world as a stepping stone toward the contemplation of the divine and, more combatively, as a weapon against the impious. Bodin addresses "Epicureans" and "those who have lost the taste of true piety" to prove to them the error of their ways: "How valuable it is that those who cannot be dragged by any precepts of divine laws or oracles of the prophets from their ingrained folly or led to the worship of the true deity are forced by the most certain demonstrations of this [natural] science, as if under the application of torture and questioning, to reject all impiety and adore one and the same eternal deity!" (Bodin 1597, sig. 3r-v). This stance is common to other atheomachias composed during the French civil wars,¹ by authors worried that, in the conflict between Catholicism and Protestantism, "there are many who dispense with both of them and live entirely without any religion" (Viret 1564, vol. 2, sig. Cvi r). Although the nature and existence of actual atheists in the Renaissance has been and is still hotly debated (from Febvre 1942 to Hunter and Wootton 1992), atheists were universally reviled by all parties in the religious wars. To frame his work as an argument against atheists is a particularly convenient strategy for Bodin, who was more than once suspected of heresy himself, in that it enabled him to take a high moral ground and to command the assent of his readers, without revealing his own religious position, which (as a result of his elusiveness on the issue) has been a matter of considerable dispute.² In the *Theatrum*, Bodin uses natural philosophy, grounded on the contemplation of final causes, to prove the creation of the world, the providence and omnipotence of God, and the immortality of the soul—tenets crucial to all the biblical religions, which seemed threatened not by any "wrong" side in the

1. Bodin is conscious of "writing when all of Gaul was aflame in a civil war" (Bodin 1597, sig. 4v and colophon).

2. For an overview of the question of Bodin's religion, see Kuntz 1975, introduction. For the most sophisticated reading of Bodin's private religion, see Rose 1980.

wars of religion but, rather, by ancient philosophies. Bodin thus attacks Epicureanism, which was loudly condemned, once it was rediscovered in the Renaissance, for the impiety of its vision of nature as based on chance, but also Aristotelianism, for its emphasis on natural necessity and the eternity of the world, and for the various naturalistic theories of the soul derived from Aristotle's texts.

In offering philosophical demonstrations of key religious tenets (in books 1 and 4 of the *Theatrum*) and (in the remaining, natural historical books) causal explanations of a myriad particulars of nature, to show that God is the final cause of a harmoniously ordered and interconnected world, Bodin does not propose a new kind of natural philosophy but, rather, new solutions to a long series of traditional questions. His natural theological project is hardly new; a number of Bodin's arguments are as old as Cicero's *De natura deorum*; most of his facts are culled from standard ancient sources—Theophrastus, Pliny, Aristotle. What is new, Bodin proclaims, is that he has posed "no problems of Aristotle or Alexander of Aphrodisias except those that have not yet been proposed; or that have been proposed but not explained; or that have been explained, but not confirmed with any reasons; or finally in which false histories were substituted for true ones" (Bodin 1597, p. 7). In other words, Bodin provides causal explanations of natural facts where none have been offered before and corrects existing explanations when they are inadequate—whether wrong or poorly supported with reasons. Although Bodin does not do justice to the range and erudition of the *Theatrum* in comparing it only to the tradition of *problemata*, his characterization of what is innovative about his work is apt. Bodin explains, for example, why donkeys are immune to insect bites, a fact which Pliny had reported but not explained: it is because of their hard and dry skin and their cold temperament (Bodin 1597, p. 299). Or Bodin corrects Theophrastus's explanation of why smaller seeds are more potent than larger ones: it is not, as Theophrastus claims, because they grow faster, but because their powers are more concentrated (Bodin 1597, p. 276).³

Only in a few instances does Bodin explicitly signal that he is asking

3. Frequently Bodin's contribution is to integrate a new and apparently contradictory piece of evidence into the explanatory principles already accepted on the issue: e.g., he wonders why the heat of the summer is greater in areas on either side of the tropics than in the tropics themselves even though the rays of the sun are more oblique. Answer: because the summer air outside the tropics is dense with humidity and hotter as a result. In this way an apparently puzzling fact turns out to fit already accepted explanatory principles (Bodin 1597, p. 212).

a *nova quaestio*, and these fit easily into the “old” questions around them and into Bodin’s agenda. They generally emphasize especially God’s direct role in regulating nature to reward, punish, and guide humans. Thus Bodin signals as new his notion that God suddenly brings forth great quantities of fish and birds without natural cause but out of his great generosity; conversely, though, God can use abundance as punishment, as when suddenly great quantities of rats damage the fields, then disappear completely (Bodin 1597, pp. 327, 393). Similarly, Bodin notes that he is the first to point out that the growth patterns of animals and plants are not random but designed by God for the proper treatment of humans: “Why do the plants that animals eat grow easily while men must cultivate those that are useful for them?”—divine providence arranged it that way so that humans would be kept busy with agriculture and forced to keep their unhealthy desires in check and to turn to religion (Bodin 1597, pp. 272–73).⁴ Finally, Bodin explains a “most difficult question, all the greater that it has never been discovered or asked by the ancients”: why do diseases, plagues, and wars wax and wane with the moon?—because God relies on the heavenly bodies to carry out his will, exacting revenge and saving the good as instructed by the divine decrees (Bodin 1597, p. 613). These “new questions” only emphasize further the traditional themes that Bodin demonstrates throughout the *Theatrum*, by showing the providence and omnipotence of a God who intervenes in nature, either directly or through demonic or astral “agents,” according to human deserts.

Bodin’s main contribution is not primarily to formulate new questions, but to provide new answers to old questions. In doing so he follows a long-traditional method of innovation by disputing previous explanations and arguing his own solutions on multiple grounds as convenient: reason, authority, and *experientia*. True to medieval precepts, Bodin proclaims the importance of grounding one’s conclusions on reasoned demonstrations rather than authority, however great and ancient (see Bodin 1597, pp. 191, 554, among other passages), and true to medieval practice Bodin ends up including the common consent of authorities as one of the strongest arguments of his “reasoned demonstrations” (see Bodin 1597, pp. 512, 537). Bodin’s pool of authorities reveals a wide-ranging eclecticism, even by late humanist standards,

4. Similarly Bodin asks later why pests like rats and frogs multiply so easily, while useful animals require careful husbandry. Again, divine providence punishes human arrogance, while rewarding hard work (Bodin 1597, pp. 339–40).

with a special emphasis perhaps on the opinions of the "Hebrews," as garnered from Old Testament and rabbinic sources.⁵ Where Bodin really goes beyond the norm of late humanist discussions, however, is in the virulence of his repeated attacks on Aristotle. Over and over again Bodin mocks Aristotle's positions on points large and small. A diligent reader who left annotations throughout his copy of the *Theatrum* flagged each one of these criticisms in the margin: "Aristotle chastised"—a total of 160 times. The interest of contemporaries in this aspect of the work is confirmed by the shorter list of such passages in the flyleaf of another less well annotated copy (Blair 1990, p. 527 and app. 2).

In book 1, devoted specifically to the questions typical of Aristotle's physics, on the principles of nature, Bodin rejects Aristotle's definitions at every turn. Aristotle is inconsistent, for example, when he defines nature as the principle of rest and motion but later defines it in terms of matter and form, generation or the physical body. There should be only one definition, Bodin objects and concludes with his own: "Nature is the essence and force given to each thing from its origin as a gift from the Creator" (Bodin 1597, p. 11). Aristotle is wrong-headed: he makes motion the measure of time, rather than time the measure of motion as it should be; he defines place in terms of its borders, not its nature—but place would exist even if there were nothing in the world, and so on. What Bodin offers in place of these Aristotelian errors, he admits, are not always genuine definitions because the subjects are too difficult: "It is best that I confess that I do not know [the definition of time], as Galen modestly confessed, than to define it ineptly: indeed nothing is better than to describe those things that cannot be defined: time is a definite part of the infinite eternity" (Bodin 1597, p. 88). Place is "the measure of the location [*situs*] of the natural body" (Bodin 1597, p. 106).⁶ Finally, Aristotle is obscure. His definition of motion, for example, is more obscure, Bodin quips, than motion itself. Furthermore, Aristotle was obscure on purpose: "As the squid troubles the clearest water with its innate ink lest it be caught, [Aristotle was

5. Bodin singles out as his favorite philosophers John Duns Scotus, Alexander of Aphrodisias, and Maimonides (Bodin 1597, pp. 512, 521, 542). He cites over 250 authors, ancient, medieval, and modern, but many of these references are secondhand, e.g., lifted from a tacit favorite like Pico della Mirandola.

6. On the nature of time, Bodin seems close to Duns Scotus, who was himself influenced by Saint Augustine, in rejecting the Aristotelian notion that the motions of the heavens are the sole measure of time: even if all movement stopped, time would continue (see Duhem 1985, pp. 295–99). On the other hand, in defining place, Bodin shuns Duns Scotus's relational emphasis and takes rather a Platonic line. I am grateful to Roger Ariew for help in making these assessments.

obscure] so that he would not reveal that the *physicus* lacked a reason or was giving a false one in difficult matters; in clear things Aristotle was usually clear" (Bodin 1597, pp. 99–100). Bodin's use here of a simile commonplace among humanist commentators on Aristotle (Schmitt 1965) is an indication of the fact that on any particular point Bodin is not necessarily very unusual in criticizing Aristotle. Certainly scholastic commentary was all about refining Aristotle's statements, although generally in terms respectful of the Philosopher's original positions; with their exposure to contradictory views even among the ancients, the humanists became bolder in critiquing Aristotle with new reasons and authorities. But Bodin's *Theatrum* is unusual and attracts attention even by late humanist standards for the persistence and virulence of his attacks.

In addition to their numbering 160 (one every four pages), Bodin's attacks on Aristotle are often scathing, repeatedly mocking the stupidities and absurdities that follow from Aristotle's views. Aristotle's meteorology was a favorite target for criticism in the sixteenth and seventeenth centuries, both inside and outside the universities, because of its simple but overarching explanatory system of watery and fiery exhalations, which by their condensation, eruption, or combustion above or below ground purportedly accounted for everything from the origin of metals and underground springs, to earthquakes, comets, and hailstorms. Bodin has a field day in this section of his work: he mocks every one of Aristotle's explanations. Against Aristotle's explanation of comets from the combustion of fiery exhalations in the air Bodin carries on with sustained sarcastic objections:

Even if we concede that smokey exhalations were borne to the sphere of the moon, although that cannot happen, in what way can all these exhalations of the air come together to form a globe so that they provide fuel for such great fires? or if the exhalations are diffused throughout the air, why are not comets too distributed through the air? . . . in addition, since the material and hypostasis of all the exhalations is the same, why is one comet of the purest clarity, while the other is black with pale blue; one is horned, another fiery and terrible . . .? Why also would they have different shapes, like a beard or a sword? . . . Why do the winds not dissipate them? . . . For what reason do they follow such a constant course from East to West? Why also would we see comets in winter more than in summer although exhalations are weak and thin in the winter, held back by the frozen earth solid with cold? why almost always toward the North? . . . and even all the

forests and woods of the whole earth could not have sufficed as fuel for the two-month long comet [that was visible in August and September 1556]. (Bodin 1597, pp. 218–20)

Before Bodin, Cardano had enumerated the different shapes and colors of comets and argued that there could not be enough fuel to keep comets burning so long, but he did not sustain his argument against Aristotle and merely concluded: "I abstain from many things that show the absurdity of Aristotle's opinion" (Cardano 1966, 3:420). Instead, Bodin revels in raising every argument against Aristotle, including some that rely on Aristotelian premises (e.g., that exhalations can rise to the level of the moon, or that the winds are born from exhalations), which Bodin rejects elsewhere but accepts here for the sake of argument. One senses in this tirade the rhetorical flourish of the barrister; although Bodin was apparently not a terribly good one, this was his profession for a few years before he became a provincial royal official in Laon (Loisel 1652, p. 548; for a brief sketch of Bodin's life see McRae 1962, or Blair 1990).

On the ruins of Aristotle's theory Bodin offers very little original construction: "Because such silliness pains me, it seems to me better simply to admit ignorance than to assert something rashly or agree with very ill-founded opinions: and just as, since wine is rarely useful but very often harmful to the sick, it is better not to give them any at all than to run a clear risk in the hope of an unlikely gain, thus it is better to feed the minds of the ignorant with no opinion than with a false one" (Bodin 1597, p. 217).⁷ This is Bodin's conclusion after his repeated refutations of Aristotelian meteorology: we must confess ignorance, for example, on the attraction of iron to magnets; or, which amounts to the same thing, we should attribute these inexplicable phenomena, like violent storms and earthquakes, to the action of demons carrying out divine orders, or to "some more divine power," as Bodin concludes in discussing the origin of metals (Bodin 1597, pp. 160, 178, 243–44, 259). Even hoarfrost or the saltiness of the sea are divine gifts beyond human understanding (Bodin 1597, pp. 199, 205). It is little wonder, then, that Bodin's anti-Aristotelianism drew the sarcasm in turn of his commentators. Bartholomäus Keckermann, for example, one of the more strictly Aristotelian German professors of philosophy,

7. Compare Cicero 1972, vol. 3, 70, p. 222, and Montaigne 1988, vol. 2, chap. 12, p. 486. Cicero and Montaigne use the analogy to wonder whether man should not be deprived of his reasoning altogether since it has such misleading effects; unlike Montaigne, who applies skepticism systematically, Bodin uses skeptical arguments only occasionally to undermine a few traditional beliefs.

refers to Bodin's discussion of comets (along with Cardano's), then concludes, "Note that those who condemn Aristotle's opinion cannot adduce any reason themselves for the differences in colors of the comets" (Keckermann 1610, pp. 917–18). In France, the only published references to Bodin's *Theatrum* that I have found make the same point more sharply. Mersenne even classifies Bodin as a *novator*, alongside Patrizi, Hill, Basson, and others, and mocks these critics of Aristotle for attacking that "eagle of philosophy" while they themselves are no better than chicks who want to fly before they have wings or worms who crawl along the ground (Mersenne 1625, pp. 109–10). Scipion Dupleix quips that Bodin found Aristotle's explanations of saltiness "too bland, for he had a depraved taste in consuming the doctrines of Aristotle: but after having rejected them he could give no better ones and had recourse to the first cause, which is God. Poor ignoramus who meddles in criticizing the master of masters without giving a reason for his criticism!" (Dupleix [1603] 1990, p. 486).⁸

Bodin himself acknowledges his strategy of destroying Aristotelian theories without proposing alternatives: "Why is it easier to overturn wrong opinions than to establish true ones? . . . First, because it is easier to destroy than to construct; secondly, because it is possible to speak falsely about each thing in an infinite number of ways but there is only one way to say the truth" (Bodin 1597, pp. 162–63). Bodin prefers to suspend judgment than to risk error, and he turns these confessions of ignorance into further exaltations of the glory of God: "It is better to admire in silence the majesty of the greatest Workman than to want rashly to go insane with reasoning" (Bodin 1597, p. 249).

When Bodin does construct an argument, it is to demonstrate traditional religious truths: against the eternity of the world (a classic medieval topic, see Dales 1990) and, as recently mandated by the Lateran Council of 1513, on the personal immortality of the soul. In book 1, Bodin attacks Aristotle for his unworthy notion of God as an animal bound by necessary laws. His demonstration against the eternity of the world hinges on the free will of God: "Nothing can be eternal whose first cause is voluntary; but the first cause of the world is voluntary; therefore the world cannot be eternal by nature" (Bodin 1597, p. 37). Bodin does not claim especial originality for this syllogism—he even cites Scaliger's attack on Cardano's *De subtilitate* in support of its major proposition (see Scaliger 1582, no. 61). Nevertheless, by offering a philosophical demonstration of this religious truth, Bodin is clearly

8. On p. 462, Dupleix also criticizes Aristotle's explanation of earthquakes as "impermanent." I am grateful to Roger Ariew for pointing out these references to me.

taking a stand against various contemporaries. On the one hand, he argues against the naturalism of, for example, the arch-Aristotelian Pietro Pomponazzi, who maintained that natural events follow a necessary chain of causes (Pine 1986, chap. 3), or, following Scaliger's lead, against Cardano's naturalism, which, although largely anti-Aristotelian, also implied the eternity of the world. On the other hand, Bodin also rejects the fideist position, which on the particular issue of the eternity of the world even had the sanction of Thomas Aquinas and was in especial vogue during the skeptical crisis of the Renaissance, that religious truths such as the timebound nature of the world cannot be established by reasoning, but only on biblical authority. Instead, Bodin maintains a long traditional position (since, e.g., Augustine) that philosophical reasoning and religious dogma cannot be contradictory but form a "single truth," on which Bodin insists repeatedly (Bodin 1597, pp. 82, 162, 521). It is precisely the conflict between Aristotle and biblical authority that justifies jettisoning so many Aristotelian propositions as absurd, even though Bodin does not offer much of a coherent philosophical system in their place.

Bodin boasts of his originality especially in his demonstrations of the immortality of the soul; indeed, his conclusion that the soul after death is not only immortal but also corporeal shocked most of his readers and warranted official Catholic expurgations of these passages. Adopting the Aristotelian notion, fundamental to scholastic orthodoxy, that the soul is the form of the body, Bodin argues that the soul is united to the body "by composition," in such a way that it is separable from it, both during life, as in cases of ecstatic possession or demonic activities like the travel of witches to the sabbath, and therefore, with all the more reason, after death. The pupil Theorus is duly impressed: "That [the human soul] is intermediate between forms that are altogether separated from matter and those which are completely inseparable from matter, seems to me a demonstration of the immortality of the soul, which, although new, is nonetheless most effective" (Bodin 1597, pp. 499–500). One reader, however, Isaac Casaubon, commented sarcastically "that the soul of man is an intermediate nature between corporeal and non-corporeal things. New philosophy!" (Casaubon n.d., p. 499). Stated so bluntly, Bodin's argument is indeed hardly original, but one of the commonplace conclusions of the chain of being in which each stage of being is connected to the next by intermediates (Lovejoy 1964); Ficino in particular had made this interpretation of the soul current in the Renaissance (Kristeller 1964).

But Bodin then goes on to argue that angels and, a fortiori, souls after death are corporeal. First, he adduces the "highest consent [of

authorities]" on the corporeality of angels, invoking neoplatonists (from Iamblichus to Plotinus), church fathers (Basil, Tertullian, and Augustine), even Aristotle and Peripatetics (Philoponus and Alexander of Aphrodisias) (Bodin 1597, p. 511). After much pleading from Theorus, Mystagogus consents to give demonstrative reasons as well, which he claims are the first of their kind, for Aristotelians and Platonists alike have asserted the incorporeality of the soul without giving any reasons for it. "I will attempt to provide a demonstration, not so much in order to overthrow the opinions of the Academicians and Peripatetics concerning the separated souls [showing that they are corporeal], but so that it is clearly understood that there is no incorporeal substance outside God" (Bodin 1597, p. 512). Souls, angels, and demons are all enclosed in the finite universe of the heavens; they thus have finite powers and finite locations. Therefore souls, angels, and demons must have bodies (of a special, spiritual kind) in order to be located in specific places, notably in heaven or hell, and to suffer rewards and punishments as they deserve. Conversely, Bodin announces that he has found a demonstration of the infinite power of God that has eluded everyone, even such formidable thinkers as Pico and Duns Scotus: since God alone is incorporeal, God is infinite and as a result has infinite power (Bodin 1597, p. 512).

Designed as part of a rationalist demonstration to convince Averroists, "Epicureans," and others who might deny the personal immortality of the soul, Bodin's arguments that souls and angels are corporeal sounded much less pious than dangerous by the time they were circulating in the early seventeenth century. By then the Council of Trent had spread Aquinas's views as the standard of orthodoxy (including the incorporeality of angels and souls after death). On the contrary, Bodin emphasizes the corporeal nature of souls, angels, and demons as agents of the divine will active throughout nature and the material world, even though his demonstrations are entirely well-intentioned, without a trace of mortalism, designed instead to exalt God as the only incorporeal being. Tainted with heterodoxy in the post-Tridentine climate, Bodin's position warranted him a place on the index, expurgations in a number of extant copies, and probably his exclusion from the reading lists at French universities (Blair 1990, pp. 483-88). The German professors, however, simply ignored those passages, focusing rather on Bodin's meteorology and other tidbits of natural history.⁹

Bodin innovates in a traditional way, I would argue: he gives new

9. Bodin's discussion of the soul also occasionally appears in doxographical notes, e.g., in John Selden 1726, 1:156. I am grateful to Mordechai Feingold for this reference.

answers to old questions and new demonstrations of traditional truths, contributes new sources to the lists of authorities, gradually adding to and subtly modifying the tradition while transmitting its basic assumptions, categories, and methods (the causes, the four elements,¹⁰ the basic explanatory principles of nature and methods of argumentation). The reception of Bodin's natural philosophy in the German universities in the early seventeenth century attests to the "normalcy" on many counts of this work, even though it was not originally associated with the universities: Goclenius, Timpler, and Keckermann especially cite Bodin's opinion regularly, even if they disagree with it, and Goclenius recommends the *Theatrum* as extra reading in his textbook of natural philosophy (Goclenius 1598, pp. 34, 94, 136; for more detail, see Blair 1990, pp. 489–504). For every critical remark, there is also praise for others of Bodin's arguments: Goclenius is enthusiastic about Bodin's refutation of Aristotle's theory of the origin of springs, about his theory that swallows take refuge under the cliffs in the winter, but he ridicules Bodin's claim that spiders and worms have the finest sense of touch because they have the finest skin (Goclenius 1598, pp. 85, 110–11, 130). These readers pick and choose among Bodin's arguments and distribute praise and blame, treating Bodin's *Theatrum* like any other of the many works in the pool of references from which they constructed their own contributions to traditional natural philosophy.

Bodin is also traditional in his respect for the division of the disciplines: he blames Aristotle for having violated that division by inappropriately mixing dialectic with philosophy when he tried to teach something at the same time as the way of teaching it (Bodin 1597, p. 2). The scholastic splintering of knowledge, which helped to perpetuate Aristotelianism (Grant 1978), by keeping related issues separated under different institutional and conceptual headings, is even exacerbated in Bodin's reduction of natural philosophy to a myriad discrete questions and answers which are never systematically interlinked. Although Bodin often challenges the Aristotelian end of the medieval synthesis between philosophy and religion, he supports the fundamental assumption of their agreement by proposing new rationalist demonstrations of religious truths and using a broad base of philosophical authorities to shore up these demonstrations.

Nonetheless, Bodin seems to have been considered beyond the pale of acceptability in French universities. In the first place, I suspect, con-

10. Bodin's most serious challenge to these basic Aristotelian premises is to rearrange the qualities of the elements, by arguing that air is the driest element. This passage draws Keckermann's heaviest fire (Keckermann 1610, pp. 210–11). See Lasswitz 1963, pp. 326–27, 411–13, who sees Bodin as introducing here elements of Stoic physics.

siderations of Tridentine orthodoxy played a greater role in France, so that Bodin's corporeal souls and angels posed a greater problem than in Protestant and decentralized German states. Second, perhaps precisely because of the importance of religious orthodoxy, Bodin's tendency to restrict the range of purely philosophical questions was probably particularly unwelcome. While convinced that philosophy could prove religious truths, Bodin also constantly reduced the number of phenomena within the purview of philosophy itself, relegating most of Aristotle's meteorology, including even something as apparently trivial as hoarfrost, to those "secrets of the divine creator" into which there is no point, perhaps even no legitimacy, in probing. Where religious orthodoxy is carefully monitored by university, church, and state, as in Paris, natural philosophers at the university have an interest in emphasizing all the more sharply a line of demarcation which reserves for themselves an area of independence as great as possible. Bodin ran against that grain not only with his heterodox views but also with his natural theological formulation of the study of nature. Finally, although Bodin's criticisms of Aristotle do not jeopardize any fundamentals of the traditional system (at least by comparison with the innovations of the "scientific revolution"), his loud and vehement criticisms of Aristotle were excessive by Paris standards.

Jean-Cecile Frey, Innovative Traditionalist

Jean-Cecile Frey has a different way of innovating:¹¹ while staunchly defending Aristotle against even minor criticisms from outsiders, he himself attacks Aristotle on a few points and above all bypasses the traditional Aristotelian questions in dictated courses at the University of Paris which stray widely from the official curriculum. He seems to me to pose a potentially more radical challenge than Bodin to traditional philosophy. Born in Switzerland but settled at Paris as of 1609, Frey had a somewhat unusual career: after receiving his B.A. and a medical degree a number of years later, he continued to teach philosophy in various collèges. His path was unusual in that he did not go on to the faculty of theology, as most of his colleagues did (perhaps because of his naturalistic and potentially heterodox interests), and did not go on to teach or to practice medicine—as a single foreigner with a poor income he did not manage to pay the fees that would have allowed him to profess medicine. Frey died (age unknown) in the great plague epidemic of 1631, after thirteen years of teaching.

Although his career seems to lack worldly success, Frey gained con-

11. For fuller detail and references on Frey's career and works, see Blair 1993.

siderable prestige and patronage as a philosophy professor—he called himself the dean of philosophers in his last years, presumably because he was the oldest and/or the most experienced in the profession and clearly had quite a following among his students, who pooled together their class notes for publication fourteen years after his death. Above all, Frey cultivated very successfully intellectual and social friendships with all sorts of prominent contemporaries, not only within the university (from Guy Patin the famous Galenist conservative to Pierre Valens, professor of Greek at the University of Paris, then at the Collège Royal) but especially outside it, building on relationships first formed with students and classmates in the various collèges: among them Gabriel Naudé (who reports copying out Frey's "Chorography" and his Greek theses), Naudé's friend Pierre Bourdelot, and the eccentric orientalist Jacques Gaffarel—all central to the circle of "learned libertines" described by René Pintard (Pintard 1943); and Michel de Marolles, a former student who organized a private academy devoted to the cultivation of Latin purity, where university types like Frey and his colleague du Val mingled with Jesuits and Huguenots, as well as the notorious libertine Théophile de Viau (Pintard 1943, p. 90).

Frey's relationships were solidified through gifts (e.g., a vermilion vase that Marolles gave to Frey to thank him for his teaching and for dedicating one of his medical theses to him), and especially through dedications: in his six academic works, which were often reedited with new dedications, and in the neo-Latin poems which Frey produced in abundance (sixteen of them were published). These were often fancy poems, acrostic, lipogrammatic and other "acrobatic" poems (no R's or S's, all the words begin with C, the initials spell out the names of the different collèges, etc.); some were dedicated to the very great, to Marie de Medici (which may have earned him the title of doctor to the queen mother which he used after 1630), to Richelieu and to Louis XIII following the victory at La Rochelle which the university as a corporation participated in celebrating. Others were dedicated to friends like Bourdelot and colleagues like Pierre de La Martelière, whose harangue at the Parlement de Paris was considered to have won the case of the university against the Jesuits when they were trying to open the Collège de Clermont in 1611. Others were dedicated to people who were likely patrons at some point or the fathers of students: including Henri de Mesmes, president of the Parlement, who employed Naudé as his librarian and was the center of an erudite circle himself; two chiefs of police, two parlementaires, the military hero Bassompierre (also Swiss by origin, who became marshal of France), noble landowners, and a bishop. Rather than a coherent set of political or social allegiances,

these dedications express a broad and varied search for patronage, in a pattern common to other contemporary "men of letters" (cf. Pintard 1943, p. 226).

What is surprising, though, is that Frey was also a card-carrying member of the university, conservative in his academic politics (greeting with glee the defeat of the Jesuits) and in his explicit philosophical commitments (attacking recent *novatores* in his "sieve of the philosophers"); yet at the same time he participated actively and was welcomed in circles outside the university, associated with a broadly defined "culture of curiosity"—located variously in private "academies" like Marolles's,¹² and amid the learned libertines. Frey was widely appreciated by his students; the most prominent among them became prelates, noblemen, and courtiers, including one who was elected to the Académie Française (Jean Balesdens); the more ordinary of them went on to careers as lawyers, doctors, and royal officials. These young men did not dismiss their collège years as meaningless scholasticizing but, instead, sang Frey's praises in two volumes of collected works, one a reedition of works published in his lifetime, the other a collection of manuscript class notes, which appeared posthumously in 1645 and 1646. No doubt the two former students who edited the volumes were pleased to publish something themselves (although one of them, Jean Balesdens, already had a long list of editions of classical and modern works to his credit), but the undertaking was a collective one—the editor of the volume of manuscripts acknowledges the help and support of some sixteen others, including some "grands" depicted, no doubt hyperbolically, weeping over Frey's death.

There is abundant material from which to understand how and why Frey appealed to his students. In addition to the six manuscripts published posthumously, I have found five others: one autograph by Frey, and four other sets of student notes, including one from the same course as one of the texts reproduced in the posthumous volume. The very minor variations (punctuation and aural misunderstandings) between these two versions of Frey's course entitled "Select Items of Cosmography" support contemporary accounts that a good portion at least of what went on in the collège classroom was the direct dictation of a text by the master which all the students took down in virtually identical form.

The earliest evidence of Frey's teaching is a conventional quadripar-

12. These differed from the better-known "salons" of the period (like that of Mme. de Rambouillet) in their focus on Latin erudition and on men but shared the same admiration for verbal acuity and extemporaneous wit as the French-language salons run by prominent women.

tite philosophy course given in 1618–19 at the Collège de Montaigu, in which Frey paraphrases and comments on Aristotelian logic, physics, metaphysics, and ethics. But Frey also includes criticism of Aristotelian explanations, notably in meteorology, on the origin of springs, or fossils, or the saltiness of the sea. Furthermore, he proudly announces a number of new topics: on the sea, on geography, on the chorography of the new world, and what is probably the first discussion of Copernicus at the University of Paris (Broclliss 1981, p. 40)—he concludes against Copernicus, of course, but this discussion laid the foundation for Frey’s uncertainty on the issue ten years later. With the exception of this course and of one short course on “subtle and difficult issues in metaphysics” (given at Boncourt in 1627), neither of which were published, the courses that Frey taught in philosophy (for which we have evidence today) have nothing to do with the stated curriculum of the University of Paris. Geography, cosmography, “the seeds and principles of physiognomy, chiromancy, divination from dreams and the Lullian art of memory,” the philosophy of the druids and precepts of dialectics for improved study habits—these are the topics (except for the course on divination which was never published) which Frey’s students remembered fondly and published posthumously.

Frey’s first responsibility, of course, was to explicate Aristotle, and four of his published works attest to the basic pedagogic reduction of Aristotelian logic and physics: one work enumerates definitions and principles; another adds on the principal axioms and propositions explicated with examples; another lists and defines the various arts and sciences. But even in a brief “compendium of all of philosophy,” Frey slips in his interest in the doctrine of signatures and his criticism of Aristotle’s theory on the origin of springs and rivers; Frey even allows for Paracelsus’s three principles, although they rank second after the four elements (Frey 1645, pp. 204–5, 224–26). Frey is much more catholic in his most famous work, the *Via* or “a new and most expeditious way to the divine sciences and arts, to the knowledge of languages and extemporaneous speaking,” which was reedited twice more in 1674 and presents a wide array of dialectical and pedagogical tips and tools for students and scholars. From Aristotle and Lull, Ramus and “Pythagoras” and from his own invention, Frey variously claims to draw lists of places, commonplacing strategies, rhetorical and mnemonic precepts, methods for beginning students of reducing books to their arguments, for mature scholars of organizing their libraries, and so on. He also advocates using games and immersion to teach the classical languages and teaching new fields like geography, history, *oconomica*, and *politica*. But Frey concludes this wildly eclectic brew with

a characteristic statement of his position: "I have drawn these things from the Preceptor Aristotle himself on which nonetheless I have shed some light, as it was permitted, to the measure of my modest ability" (Frey 1645, p. 507). He expresses here both his humble respect and commitment to Aristotle and his desire to innovate within acceptable norms.

Frey's juicier courses were published posthumously. His "Eclogue on the Philosophy of Druids" reports on and praises the accomplishments of ancient Gallic druids, who derived their wisdom directly from Adam's son Seth and demonstrated deep religious and natural philosophical knowledge, for example, in their worship of mistletoe and of symbols of the Trinity. In the "Select Items of Cosmography" and "Curious Propositions about the Universe" (Frey 1646, pp. 90–320), Frey discusses all kinds of wonders and interconnections of the natural world: in the first, for example, he traces triplicities throughout the universe from the Trinity, to the order of angels, the number of regions in the air, the number of accidents, and, of course, the three parts of Gaul. In the second he shows how "all things which are found in the earth are found under the earth and in the air above the earth" (Frey 1646, p. 162). Angels in the heavens, men on earth, and living beings underneath the earth—these are the pygmies, who complete the principle of fullness according to "Plato and the truth of the matter": since beings can be rational and immortal (angels), rational and mortal (humans), or irrational and mortal (beasts), there must also be irrational and immortal ones—the pygmies and subterranean demons described also by Georg Agricola (Frey 1646, p. 104). Frey's "propositions" are often barely attached to a philosophical explanation but compile accounts of sinking islands, or milkmaids turned to salt by the exhalations of an earthquake, or the strange phenomena encountered on sea voyages, like the fact that the fleas and lice that inhabit a ship die as they cross the meridian westward and come to life again upon returning east (Frey 1646, pp. 127, 137–38). Alongside motions of the earth, like earthquakes, Frey also considers the Copernican hypothesis again and this time leaves off a sophisticated series of arguments and counterarguments without concluding either for or against the motion of the earth. After refuting a number of standard arguments against Copernicus, Frey concludes, "The arguments on neither side are firm. . . . [Those against Copernicus] argue that if you throw a stone and the earth moves, it will not land in the same place. . . I answer that this one argument can convince: nonetheless it can be said that if the air moves with the earth, it carries the stone along with it and thus the stone lands in the same place" (Frey 1646, pp. 217–18).

Frey's strictly physical approach here offers the possibility of a Copernican resolution, with no mention of biblical or ecclesiastical objections.

Unlike Bodin who insisted on maintaining them, Frey ignores traditional boundaries between different fields of philosophy, dialectic, physics, and new topics like geography or druidic thought and instead treats "universal philosophy" and "propositions about the universe." But at the same time, Frey upholds the barrier that Bodin was eroding between the philosophical and the religious or apologetic study of nature. Although he expresses a fervent Catholic piety in some of his poems, Frey does not introduce biblical authority or religious objections in his discussion of natural philosophy. Frey does not range as widely in his sources as Bodin and is nowhere near as erudite: he gives very few precise references or difficult allusions. Yet he shares with Bodin that typical Renaissance agenda of syncretizing Plato and Aristotle, and also favors Pico as a tacit or acknowledged source (on the triplicities and other correspondences, notably between microcosm and macrocosm). But in his freestanding courses Frey bypasses the traditional questions which occupied Bodin and introduces a new motivation for traditional natural philosophy: although he sometimes provides causal explanations, that is not Frey's main interest (as it was Bodin's); instead, Frey dwells especially on the wondrous, the marvelous, and the curious, terms which crop up throughout his works and are prominent in his titles. Frey's autograph manuscript "miscellany," which a contemporary ostensibly began to prepare for publication as "The Garden of J-C Frey" (although it was never published), brings together in topical chapters all of Frey's favorite themes—innovative educational methods, Lullian mnemonics, the doctrine of signatures, methods of divination, and numerous curious propositions, from underground demons to earthquakes and giants.

Frey also gives his work, in geography and in curiosities, a French national orientation. Frey publishes, for example, a book on the wonders of Gaul (it is not clear whether it stems from a course), in which he includes not only the geographical features of France, but also architectural and cultural achievements, from kings to those of famous printers and professors, including his own accomplishment of introducing the defense of theses in Greek at the university of Paris (Frey 1645, pp. 386–87). Frey's autograph manuscript on geography covers the whole world but devotes almost half the work to France alone, detailing the natural resources and features of each region. In bypassing existing disciplinary boundaries and curricular requirements Frey's courses not only introduce new sources (on the new world, or

various esoterica), as Bodin's *Theatrum* did, but entirely new questions. François Dainville has commented that the departure in Jesuit colleges from commentary on assigned texts to freestanding courses dictated by the master "was the pedagogical expression of a serious revolution, that which gave birth to Descartes" (Dainville 1940, pp. 222–23). This remark applies equally well to Frey's teaching at the university. The innovations that Frey emphasizes also parallel the developments for which the Jesuits have received so much credit: the study of geography as a collection, on the one hand, of exotic curiosities (the Jesuits had their mission reports, but Frey could use published travel accounts from Marco Polo to Oviedo) and, on the other hand, of knowledge useful for future royal officials, covering the natural resources, rivers, mountains, and crops of each province of France. The presence of other geographical manuscripts bound with Frey's in one library, and comments by Marolles to the effect that he had already been exposed to some of these topics, suggest that Frey's geographical teaching was not that exceptional at the University of Paris, despite the fact that the official statutes make no mention of the subject (Marolles 1656, pp. 35–36). It is hardly surprising that the university should develop in some of the same directions as the Jesuit colleges, although the latter have always been considered more "forward looking": both institutions catered to the same pool of students, and the case of Frey suggests that the University of Paris responded to student interests better than has often been assumed.

At the same time, Frey was an unreconstructed conservative when it came to explicit attacks on Aristotle. In the *Cribrum philosophorum*, or "Sieve of the philosophers" (Frey 1646, pp. 29–89), ostensibly based on a course given in 1628, Frey sets out to "gather the main doctrines of the main authors opposed to the Aristotelian ones . . . and to shake them through the sieve of dialectical truth. . . . These opponents of Aristotle . . . embrace a sterile cloud full of smoke. And nonetheless how many crowds in the academies and assemblies of literati and others they have excited and continue to excite . . . But we who preserve Aristotle as the parent of divine and human wisdom are called stupid and simpletons" (Frey 1646, 29–30).¹³ Frey's *Cribrum* is no doubt a response to the intensifying series of attacks on Aristotle during the 1620s: by Campanella, Bacon, Sebastian Basson, and others, culminating in the fourteen theses of Antoine Villon "against the dogmas of Aristotle,

13. I have so far found neither precedents for nor comparable contemporary uses of *cribrum* as Frey applies it metaphorically to the sifting out of truth from the bulk of philosophical opinion.

Paracelsus and the Cabalists" which were immediately condemned by the Sorbonne and the Parlement (Garber, in press *a*, in press *b*). Although others responded to this particular attack on university orthodoxy, Frey claims to be the first to refute arguments against Aristotle mounted by so many different authors, "opening (as he says) an unknown way; if it is pleasing, it will add the courage to attack higher things" (Frey 1646, p. 89).

The *Cribrum* is not a systematic, positive defense of an Aristotelian system but a point-by-point refutation of an amazing range of criticisms: from Peter Ramus's rejection of the ten Aristotelian categories (Frey objects that Ramus's categories deal with names rather than things) to Pomponazzi's belief in the magical power of words to act at a distance (which violates the Aristotelian principle that there is no action at a distance), to Gassendi's criticism of Aristotle's mastery of geography (e.g., when he locates the source of the Danube River in the Pyrenees or claims that there is no snow on the highest mountains). Frey uses every tool at his disposal to defend Aristotle with equal seriousness on each point that he raises, whether a major issue, like that of the categories, or a minor detail of geography. Like Bodin, Frey resorts to an almost reckless, scattershot set of arguments, assailing not Aristotle this time, but those who would attack him, including scholastic-style distinctions, or arguments that he himself refutes elsewhere, bookish authority as well as more direct *experientia*. Thus Gassendi, Patrizi, and Campanella are wrong to claim that air and water are not elements because they cannot generate themselves: in the first place, air does generate air by making water evaporate and water generates water by condensing air; but (Frey covers himself) even if water could not generate water nor air air, this would not imply that they are not elements (Frey 1646, p. 66). Or, to show that Aristotle was right that there is no snow on the highest mountains, Frey cites, against the obvious evidence of the Alps and Pyrenees which Gassendi adduces, the reports of Acosta and Alexander of Aphrodisias that there is no snow on the highest mountains of Olympus or the Andes (Frey 1646, p. 41).

Frey is especially adamant about defending Aristotle against charges of impiety, as leveled, for example, by Gassendi, Patrizi, and Ramus (or Bodin, he might have added). To the criticism that Aristotle was neither Jewish nor Christian, Frey responds: "What does this matter? for we do not believe a revealed truth but a natural one which is attached to no religion" (Frey 1646, p. 68). Bodin might well have agreed on this point, since he too proposes a "natural" philosophy which demonstrates propositions that are not associated with religious

partisanship but form a single, universal "truth." But Frey soon parts ways with Bodin, when it comes time to discuss Aristotle's position on natural necessity, divine providence, the eternity of the world, and the immortality of the soul. Frey objects to the charge that Aristotle was impious to teach that God is subjected to the necessity of laws: "For Aristotle taught nothing other . . . than the immutability of God and that his word is irrevocable, so that what God once made is made, not that he could not have made it otherwise, but that once he has decreed it, it is inviolable" (Frey 1646, p. 71). Frey here uses the scholastic distinction between God's absolute and ordinary powers to reconcile Aristotle's natural necessity (God's ordinary power) with the Christian notion of divine omnipotence (God's absolute power). Bodin, on the contrary, had effectively rejected both notions as excessively constraining on divine omnipotence and free will—the first for constraining God with laws of any kind, even those he laid down himself, the second for implying that like some human sovereign God derived his power by "being freed" from the laws.¹⁴

To those who claim that Aristotle impiously denies that God cares about human affairs, Frey first seems to absolve Aristotle by attributing similar positions to all ancient philosophers, from Plato to the Epicureans and Stoics, and even to the church father Jerome, but then (characteristically) denies that it is a correct interpretation of Aristotle in any case: "For Aristotle said that God was the Monarch of this world: therefore he has knowledge or should have knowledge of the things over which he reigns: but how could he not?" (Frey 1646, p. 72). On the immortality of the soul and the eternity of the world, Frey opts for the Thomist type of reconciliation, according to which neither truth can be demonstrated "naturally" by Christians. Thus it is rather Gassendi who "would be impious if he proved naturally the resurrection of the dead" (Frey 1646, p. 72). Likewise, "we are allowed to believe that the world does not exist from eternity, nonetheless there are no reasons to assert more probably that it does not exist from eternity than that it does" (Frey 1646, p. 56). In other words, philosophy cannot determine such theological issues in any case, so that Aristotle's positions are as reasonable as any others that philosophy can reach. Frey's top priority, when the synthesis of Aristotle and Christianity seems

14. "It is more judicious to speak of the hand of the All-powerful . . . than of 'absolute' rather than 'ordinary' powers: for the great Prince of the world will always be freed, not by the senate nor by the people, but by himself, from the laws of nature which has fixed and ordered" (Bodin, 1597, p. 40). Throughout the *Theatrum* Bodin emphasizes God's direct intervention in nature; see, e.g., Bodin 1597, pp. 27–28, 31, and the passages cited above.

threatened, is to save Aristotle himself rather than the role of philosophy in demonstrating religious truths. Frey thus rejects as impious themselves the recent concerns of Gassendi and others (including Bodin) about the genuine "fit" between Aristotle and biblical positions. Frey preserves for a philosophy loyal to Aristotle a clearly defined and autonomous space within which to function without interference from theology, although in doing so he shuns the kind of bold claims that Bodin made for philosophy as a source of rational and universally compelling demonstrations of religious truths.

Frey thus defends quite dogmatically against attacks large and small, geographical and theological, a philosophy based on Aristotle and on the Thomistic reconciliation of Aristotle and Christianity. How to reconcile, then, this conservative defense of traditional authority with Frey's own criticisms of Aristotle (which are well equal to those he attacks so vehemently in others) and his introduction of wildly non-canonical courses? Frey does so himself in the last section of the *Cribrum* in which he attacks not a self-conscious opponent of Aristotle (like Gassendi, Bacon, et al.) but the Jesuit François Garasse, who in his *Doctrine curieuse des beaux-esprits* (1623) would seem to be attacking the very same freethinkers as Frey. But Frey lashes out against Garasse with more vehemence than ever, showing that Garasse is not a true follower of Aristotle, because he advocates clinging to tradition without questioning received opinion and attacks curiosity as the greatest sin of all. For good measure, Frey also shows how Garasse deviates from Aristotle on any number of apparently minor issues, such as his "deep disagreement" with Aristotle for considering big eyes, small mouth, and wide features to be criteria of beauty (Frey 1646, p. 86). But it is above all Garasse's narrow-minded dogmatic Aristotelianism which Frey tries to demolish.

Garasse asserts, for example, that it "is always wiser to follow common opinion in the practice of the arts and he proves this from the example of the Calculator who cried when he realized he had taught things outside the common opinion when he was younger and did not understand" (Frey 1646, pp. 84–85). And Frey responds, "[Garasse] errs, for Aristotle teaches in the first book of the Topics that those things are probable not only which seem so to all, but also those which seem so to the wise or the wiser or to one very wise person: therefore it is permitted to abandon common opinion and to follow some learned person in the sciences. Aristotle himself rejected the common opinion of the ancients. About the Calculator he is wrong too: for Julius Scaliger . . . reports that the Calculator . . . cried not because he did not understand but for joy because of his most perfect works" (Frey 1646,

pp. 85–86; cf. Scaliger 1582, no. 340).¹⁵ Frey thus defends the principle of rejecting received opinion and advances a notion similar to Jesuit probabilism, that as long as one reasonable authority can be found in support of a position, it is still probable and thus tenable. In Frey's conception of Aristotelianism, innovation (like that of the Calculator) is a subject for tears of joy rather than sadness and has the sanction of Aristotle's own behavior. Indeed, in all his works, while pledging allegiance to Aristotle in opening and closing statements, Frey regularly points out how original and new his work is, often to the point of exaggerating his originality: from the proud announcement of new topics that he has introduced, like the sea or the question of living beings under the earth (Frey 1646, p. 233), to the "new ways" he has opened in teaching dialectic or in his "sieve of the philosophers" (Frey 1645, pp. 16–17, 88–89, 427).

For Frey, being an Aristotelian does not mean following a tradition dogmatically but means having an open and curious mind which leads one frequently to innovate. Against Garasse's rejection of curiosity as a sin, Frey rests on the authority of "Aristotle, who says that philosophizing is born from admiration and curiosity" (Frey 1646, pp. 87–88). On the other hand, Frey would brook no compromise with explicit challenges to the basic status quo of his institutional investments. He let loose the full force of his dialectical skill with great passion against those who challenged the official primacy of Aristotle as the cornerstone of the curriculum. However much in practice Aristotle was criticized and complemented with alternative sources, the Philosopher had been reduced, methodized, and pedagogized so thoroughly in textbooks, treatises, and theses that no professor could afford for this investment to be jeopardized. Frey also bristled at what he perceived as threats to the traditional relationship between philosophy and theology, which left philosophy in an inferior, but at least fairly autonomous, position. With his loud mocking of Aristotle and his interest in forging a new philosophical demonstration of religious truths, Bodin was thus anathema to university philosophers like Frey, because his new directions, although perhaps further than Frey's from so-called modern innovations, threatened vested interests at the University of Paris. One can wonder, though, how far innovations from within the university might have gone: Frey left the door open for Copernicanism

15. The "Calculator" is usually identified as Richard Swineshead, a natural philosopher of the Merton College School, active 1340–55; but Scaliger identifies him as John Swineshead ("Joannes Suisset," see Scaliger 1582, no. 324), a near-contemporary colleague at Merton College, virtually indistinguishable from Richard from the historical distance of the sixteenth or the twentieth centuries.

and introduced Paracelsian signatures and principles among other noncanonical topics. That this pattern of expanding the curriculum from within never managed to keep up with or integrate the rest of the "scientific revolution" certainly has a lot to do with the self-consciously "revolutionary" and anti-Aristotelian proclamations of the neoterics, perhaps more in some cases than with the daring of their ideas. One gets the sense from Frey's *Cribrum* that to attack or defend Aristotle or neoterics of various stripes was more a matter of contemporary intellectual and institutional politics than of any actual weighing of arguments and reasons. At least this comparison between Bodin and Frey highlights the great variability in the correspondence of explicit statements about Aristotle and actual indebtedness to him. Second, it reveals the role of contingent historical and geographical circumstances which affected the openness of the universities to innovation. It does not seem impossible that a "scientific revolution" properly presented as respectful of received authorities could have gone a long way within the universities, but in Paris the importance of religious orthodoxy limited the philosophers' openness to some lines of innovation (not necessarily those most premonitory of "modern" science, though) and, more important perhaps, limited their interest in the natural theological formulations which proved such a strong alliance for both traditional and "modern" studies of nature in Protestant areas.

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