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Contents

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I have also mined my own previous work in the history of philosophy, especially for Chapter 8, in which I adapted the introductory material from Clarke (2013).

Finally, two readers on behalf of Oxford University Press made valiant efforts to remove from the penultimate draft potentially misleading cues or to amend editorial decisions about the inclusion or exclusion of various authors who were influential in the philosophical life of France in this period. The final text has benefitted from their suggestions, even when other considerations persuaded me not to implement them fully.

Preface

It would be difficult to exaggerate the contrast between philosophical discussions in early modern France, which took place in the ominous shadow of intense religious disputes, and their counterparts in the twenty-first century. One episode may illustrate the extent to which they differ radically. On the eve of the civil and religious wars that devastated the kingdom during the second half of the sixteenth century, the regent, Catherine de' Medici, summoned representatives of the Catholic and Reformed churches to a national synod at Poissy in 1561 to discuss strategies for avoiding civil war. Rather than address the urgent political realities that confronted them, however, the religious leaders began an acrimonious theological dispute about transubstantiation, which ended when the Catholic party accused their opponents of blasphemy and threatened to walk out. Biblical and theological disputes so permeated the political, cultural, and intellectual life of that period that it was almost impossible to identify disciplinary boundaries for philosophy. Thus, although it would be a category mistake today to quote the Bible to decide a disputed question in philosophy, no philosopher in early modern France could avoid engaging with biblical texts or with the authority that competing Christian churches claimed (with legal support from civil powers) to define orthodox religious doctrine. Within that multi-disciplinary mix, however, numerous authors proposed theories and constructed arguments that, with appropriate filtering, may be recognized today as genuinely philosophical.

There was another equally significant factor that affected the content and style of philosophical inquiries in this period, namely the tradition of teaching scholastic philosophy in colleges that prepared young men for further study at university level (where philosophy was generally not taught). These colleges were officially dedicated to teaching the arguments and theories that had been developed in the Middle Ages as commentaries on the writings of ancient Greek and Latin authors. The *collèges de plein exercise* and the philosophy textbooks with which they instructed their students were defined by their continuity with the past and their almost religious respect for the authority of their preferred sources. As a result, many books that were published during the reign of Louis XIV were so entrenched within traditional scholarly paradigms that they could have been published unchanged one hundred years earlier by merely changing the date on the title page. Fidelity to tradition fostered an almost universal lack of originality.

But there were also other writers who introduced novel ideas and new theories—often in a language that was merely a modified version of scholastic Latin—or who challenged the conceptual framework in which generations of students had been

educated. Many of these authors faced religious or political opposition and, in some cases, harsh punishments. The experiences of Giordano Bruno, Galileo Galilei, and Tommaso Campanella continue to reverberate through the history of ideas, even if the details of their alleged offences have faded in comparison with the notoriety and severity of their punishments. Of course, the dangers involved in defending unpopular opinions were not confined to Italy. France also had its own history of witchcraft trials, official prohibitions of new philosophical ideas, and extreme penalties for those who disturbed the peace of the kingdom. Originality in philosophy was often purchased at a high personal price.

A comprehensive history of philosophy in early modern France would therefore reflect both the continuity with tradition of the former authors and the relative discontinuity of the latter. Nonetheless, the large number of almost anonymous scholastic teachers and textbook authors who represented continuity with the past are omitted in this survey, for the following reason. While Aquinas, Scotus, et al. made original contributions to philosophy, those who repeated or modified their arguments in the schools were generally as unoriginal as their early modern critics alleged. For that reason, I focus almost exclusively on lawyers, physicians, theologians, and natural scientists because, with one minor exception, none of the contributors to original philosophical thought in this period was employed as a philosophy professor. Philosophical innovation was primarily the preserve of writers who rejected traditional scholastic philosophy or, in exceptional cases (such as Pascal), those who had not even studied at a college or university or who were officially disbarred from doing so because they were women.

Selecting those who should be included or excluded in a history of *French* philosophy involved still further choices for another obvious reason. Philosophical discussions did not respect geographical borders, because many publications were still written in Latin (and were therefore accessible to scholars internationally) and because some authors lived and published outside the countries that determined their national identity. Thus neither the language in which authors wrote nor their habitual domicile was a satisfactory criterion for defining them as French. Hobbes lived in Paris and wrote some of his most famous works there, although the focus of his reflections was primarily the political and religious situation in England. In contrast, Descartes was born in France and spent almost the whole of his scholarly life in the United Provinces, while the most prominent representatives of the Reformed Church all emigrated from France to Geneva. By ignoring residency as a decisive criterion, therefore, I exclude any significant discussion of Hobbes (who features prominently in another volume in this series) and include the expatriate Descartes as epitomizing French philosophy of the period.

Despite these challenges—of distinguishing philosophers from other authors whose disciplinary home was primarily natural science, theology or literature, and distinguishing French philosophers (even when they emigrated) from those of other nations—there was a distinctive group of French writers who reflected philosophically

on the major cultural and political issues that arose in France between approximately 1572 and 1675. The delimiting dates were chosen for two reasons. Following the St Bartholomew massacre (1572), the monarchomachs and their great rival, Bodin, discussed political philosophy in ways that anticipated the fundamental questions about democracy and representative government that reverberated throughout Europe in the seventeenth and eighteenth centuries. That event provided the occasion for the political reflections of Bèze and Hotman and set the starting date at 1572.

The *terminus ad quem* was less easy to demarcate in a precise year, for two reasons. One was because the content of this history is arranged thematically, and there was no convenient date by which all the authors who are relevant to the various themes had died. Secondly, the publisher plans to dedicate another volume in this history series to Cartesian philosophy after the death of Descartes (1650). For that reason, La Forge, Cordemoy, Malebranche, and their successors have been excluded, apart from brief references, although many of their works appeared before 1675. In contrast, the publications of Poulain de la Barre in the years 1673–5 have been included because of their significance for Chapter 8.

The focus of this selection from the history of ideas, therefore, is on novel theories written by French philosophers (in Latin or French) after the St Bartholomew massacre and before the emergence of Cartesianism as a distinct school. The extent to which relevant authors engaged with disputed biblical interpretations and various Christian churches persuaded me to cite more often than usual the appropriate official teaching of church councils (especially the Council of Trent) and of religious leaders such as Luther or Calvin. It is clear, in retrospect, that disputed interpretations of biblical passages frequently set the limits within which philosophers were free to explore safely. Three of the most widely disputed questions with which philosophers of the period contended resulted from a literal reading of biblical texts: transubstantiation, heliocentrism, and the immortality of the human soul. These were not the only questions, however, for which the authority of the Bible was invoked; all the political theorists, moralists, philosophers, and even scientists of the period engaged actively in discussions about how to read the Scriptures.

The decision to focus on new ideas rather than traditional scholastic philosophy reduced the number of writers who might otherwise have deserved inclusion, and it was relatively easy to select some of the principal intellectual problems and subdisciplines to which French philosophers contributed in the century after 1572. Scepticism was one such issue, with which the name of Montaigne remains permanently linked. So likewise was natural philosophy, the development of which was officially acknowledged by the foundation of the *Académie royale des sciences*, and to which Descartes and Pascal made lasting contributions. The theological and political disputes that threatened the survival of the kingdom before Louis XIV reached his majority produced a wealth of reflection on ethics and politics, while the Lateran Council's invitation to Catholic philosophers to prove the immortality of the human

soul influenced a generation of writing in the philosophy of mind. Finally, the ongoing dispute about the superiority or inferiority of women in relation to men was transformed by a number of French authors into a discussion of their natural and moral equality, which was a new theme that had failed to emerge from the metaphysics of the schools.

I provide very brief biographies, in an Appendix, for authors who are discussed in greater detail, and I identify their names with an asterisk when their theories are initially discussed (e.g. Hotman*). In the case of authors who feature less prominently in the body of the text, I supply only their dates.

A Note on References

I have used the author/date reference system. In most cases, however, when reporting some author's views I have simplified the reference by omitting their name, since the context and the date of publication alone will guide readers to the relevant item in the Bibliography. Thus if Bodin or Bèze is the subject of a sentence or if the context indicates that their views are being reported and cited, I provide only the date and page number of the relevant publication by Bodin or Bèze. The dates used should not be used, of course, as a guide to when a book originally appeared, since I quote from standard English translations when available. The date and context of initial publication is given in the text or a footnote, when necessary, and when I cite modern editions of primary texts in the Bibliography I add the date of first publication or of the edition used. Apart from sources for which an English translation is available and is listed in the Bibliography, I have translated all quotations from non-English sources and provided a reference to the corresponding foreign-language text.

Two authors who appear frequently and whose publications are less easily identified in the above manner are Descartes and Pascal. In the case of Descartes, I refer to the relevant volume of the standard Adam and Tannery edition of the complete works by using only the volume and page number (rather than the customary acronym 'AT'). Where I have translated a citation in the Penguin editions of his works, I refer to Descartes (2003a) as 'D' (for *Discourse* and related writings) and to Descartes (2003b) as 'M' (for *Meditations* and related writings). I also use Stephen Gaukroger's Descartes (1996) in a similar way and identify it as 'W' (for *The World and Other Writings*). Otherwise, I translate Descartes quotations from the relevant volume of the Adam and Tannery edition.

Editors have adopted radically different solutions for numbering fragments of text in Pascal's *Pensées*. Since many modern editions provide a concordance of alternative numbering systems with which a given fragment may be identified, I have referenced only two fragment numbers from two of the more popular numbering systems, those of Sellier and Le Guern, together with the volume and page number in the two-volume Le Guern edition (Pascal 1998–2000).

1

Philosophy in Context

'Civil wars are the greatest of all evils.'[1]

1.1 Introduction

The history of philosophy is limited by currently available textual evidence of what was said or written by those who engaged in philosophical reflection in a given period. The invention of the printing press in the fifteenth century, and the proliferation of printers who borrowed and adapted Gutenberg's innovation in the sixteenth century, provided relatively cheap and accessible means of publication for those who wished to share their thoughts with contemporary or later readers. As a result, almost every significant historical event—whether political, religious, cultural, or scientific—provoked a profusion of commentary, often in the form of inexpensively produced pamphlets. The fact that Latin was the common language throughout early modern Europe in which an educated minority had been instructed made possible the dissemination of ideas across geographical borders of states and principalities; in a real sense, there were no borders and relatively few linguistic impediments that could effectively control the diffusion of opinions. Evidently, when authors reverted to their vernacular, as they did more frequently in the seventeenth century, the infrequent translation of academic works was a new obstacle for those readers whose knowledge of languages other than Latin was confined to their own vernacular.

Within this voluminous outpouring of printed words, philosophy competed for attention as a distinctive style of expression that was (and remains) often difficult to distinguish from theology or natural philosophy. Nor is it usually possible to resolve demarcation problems between disciplines retrospectively, by classifying some authors as 'philosophers' and then identifying their published work as philosophy. What is now described as philosophical reasoning or analysis was widely distributed in the publications of lawyers, theologians, natural philosophers, and political commentators in the early modern period. The richness, diversity, and relative obscurity of these deposits makes their excavation challenging—not because they were few in number, but because of the range of texts in which they occur and because they were often concealed in the prolix writings of authors who were not subject to even minimal

[1] Pascal: *Pensées* (Fr. 87/128: II, 569).

editorial control. The length of many books, often in multiple volumes, seems to have been constrained only by the supply of paper, ink, and the costs of printing. If, therefore, one examines publications that appeared over a sufficiently long period—such as the century that is the focus of this review—one finds philosophical discussions in a multitude of publications by disparate authors.

Despite the great variety of events and disputed questions that could have provoked philosophical discussion, however, there were local factors that influenced significantly the choice of topics to which French authors in the early modern period turned their attention and the style in which they discussed them. These include the political instability of the kingdom in which they lived, the conceptual tools with which their education and culture had provided them, and the threat of punishment—which often originated from Christian churches—for those who deviated from official church teaching, even in philosophical publications, and risked being classified and punished as heretics. Although these threats did not prevent the discussion of novel issues, they certainly affected the explicitness with which some questions were raised and the qualified conviction with which some contributors to early modern French debates proposed or defended their views.

1.2 French Politics from Charles IX to Louis XIV

France was already a distinct geographical kingdom in the middle of the sixteenth century, in contrast with the loose federation of numerous principalities, free cities, and prince-bishoprics that comprised the Holy Roman Empire to the east and the multiple political units that eventually merged into modern Italy. It was bounded on the north by the Spanish Netherlands, which was controlled by its southern enemy in the Iberian Peninsula, and elsewhere by French provinces (such as Savoy and Lorraine) whose loyalty to the crown was subject to frequent review when their princely rulers allied their interests with France's foreign enemies. Despite these contested boundaries, however, a map of Europe in the 1560s would show an association of provinces—from Picardy in the north to Navarre in the south, and from the Atlantic as a western border to Burgundy and Provence in the east—that were identifiable as the kingdom of France. The apparent geographical unity was not matched, however, by political stability. During the century that is discussed in the following pages, France was almost constantly at war, both internally and externally. The ineffective leadership of a succession of kings, often in their minority, affected the conduct of those wars significantly until Louis XIV assumed the full powers of his office in 1661.

When Henry II died in a jousting accident in 1559, he was succeeded in turn by each of his three sons, Francis II (1559–60), Charles IX (1560–74), and Henry III (1574–89). Although Francis II was only fifteen years old in 1559, he was technically of age and his short and ineffective reign concluded with his death eighteen months later. Since Charles IX was then only ten years old, his mother, Catherine de' Medici, became Regent and continued to exercise a significant influence on royal decisions for three

decades. Charles had no male heir either; accordingly, his younger brother succeeded him as Henry III in 1574, and reigned ineffectively until he was assassinated in 1589 while laying siege to Paris. This thirty-year period of royal instability, 1559–89, coincided with the worst excesses of the religious wars. In these circumstances, political philosophers in France addressed questions about the source and limits of royal power, the limited jurisdiction of local princes, the alleged unsuitability of women to rule kingdoms (often an expression of personal animosity towards Catherine de' Medici rather than a political commentary on Salic law), and the circumstances (if any) in which it may be morally permissible to wage war against the king. One of the defining moments in this tangled history was the St Bartholomew massacre on 24 August 1572, which terminated prior efforts by the Regent to implement a tolerant *modus vivendi* between hostile members of the two main Christian churches.

The Regent had made a number of conciliatory overtures to Huguenots in the 1560s. In June 1561, the court convoked a national synod at Poissy to address the impending religious crisis, at which delegates contributed in the presence of the king and Catholic prelates. Theodore Bèze*, who led the Calvinist delegation, and the Cardinal de Lorraine disputed at length about the doctrine of transubstantiation, which had been defined as a dogma of Catholic theology by the Council of Trent in 1551 (Bèze 1882, 268b–71b).[2] Bèze must have shocked his listeners with his summary of Calvinist belief about the body of Christ in the Eucharist: 'if we consider the distances between places (as we must do, when it is a question of his bodily presence and his humanity…), we say that his body is as far removed from the bread and wine as the highest heaven is from earth' (Bèze 1882, 281). When he had completed his presentation, the Roman Catholic representatives shouted '*blasphemavit*' [he has blasphemed], and stood up to leave. Not surprisingly, those conciliatory efforts failed. A new policy devised by the Chancellor de L'Hôpital in 1562 provided a limited measure of religious freedom for dissenting churches, but this was opposed by some Catholic nobles who favoured the extermination, by force if necessary, of heresy in the kingdom. As a result, open civil war erupted in 1562, during which atrocities were committed on both sides and many French towns became officially associated with whichever church won a temporary upper hand.

The religious affiliations of the three leading noble families, the Bourbons, the Guises, and the Montmorencies, added a political dimension to what might otherwise have appeared as primarily a theological dispute between rival Christian churches. The Guises favoured the repression of Huguenots, while the King of Navarre's brother, Condé, and Montmorency's nephew, Coligny, became public leaders of the Huguenot cause. The assassination of the Duke of Guise in 1563 helped suspend hostilities in a truce that was formalized by the Edict of Amboise in March 1563. The Cardinal de Lorraine—who belonged to the house of Guise—returned from the Council of Trent with ambivalent views about religious toleration, and civil war broke out again during

[2] Trent's teaching and the reactions by French philosophers are discussed in 3.3, 3.5 below.

the period 1567–70. Continuing hostilities with Spain were exacerbated by the revolt of Calvinists in the Netherlands, and Charles IX apparently considered an intervention in that conflict, less to support the Huguenots than to oppose their common Spanish enemy. While the king procrastinated, he arranged the marriage of his sister Margaret to the King of Navarre, and welcomed Huguenot leaders, including Gaspard de Coligny, to celebrate this diplomatic coup in Paris. Coligny was attacked and wounded, apparently by a sympathizer for the Catholic cause, on 22 August, and rumours spread that the Huguenots were about to launch a counter-attack on the crown. Two days later, soldiers under orders from Henri, Duke of Guise, killed Coligny in his bedroom; an angry mob in Paris then killed thousands of Huguenots, and similar attacks on a smaller scale occurred in other French towns.[3]

When Charles IX died two years later (1574), his brother returned from Poland—where he had been king—to assume the French crown as Henry III. Henry's attempts to make peace with the Huguenots were frustrated by hardening attitudes among Catholic supporters of repression. A new political force in the form of the Catholic League emerged, led by the new Duc de Guise, and within a decade another phase of civil and religious war broke out and continued with periodic unsuccessful attempts at peacemaking until Henry had both the Duc de Guise and his brother, the Cardinal de Guise, murdered in December 1589. The subsequent open war encouraged an alliance between Henry and the Huguenot king of Navarre. Together they laid siege to Paris in the summer of 1589, in the course of which Henry III was assassinated by Jacques Clément. Despite the attempts by the League to appoint the Cardinal de Bourbon as king with the title of Charles X, and an even less plausible overture by Philip II of Spain to suspend Salic law and promote the claim to the French throne of Henry II's granddaughter, the Infanta, Henry IV managed the smooth transition of the crown from one noble family to another. He subsequently converted to Catholicism in 1593 and was crowned in Chartres the following year.

Henry IV was a far more able king than his three immediate predecessors. He concluded the war with Spain with a peace treaty in 1598, and in the same year he chose the capital of Brittany, Nantes, in which to promulgate a treaty of toleration for Calvinists, as an expression of his diplomatic victory over the Breton League. Although both Huguenots and Catholics (especially those who supported the League) were dissatisfied with the Edict, and the relevent *parlements*[4] registered and implemented it only reluctantly, it confirmed the policy that had been adopted in the 1560s of attempting to find a compromise between two religious factions, which viewed each other as

[3] See Sutherland (1973), Soman (1974). In response to the massacre, two of the political theorists discussed in Chapter 7 published their assessment of the king's justification for the massacre; Bèze wrote *Responsio ad orationem habitam nuper in concilio Helvetiorum* (1573), and Hotman wrote his *Discours simple & véritable* (1573).

[4] I have retained the French term '*parlement*' throughout to avoid giving the impression that these were legislative bodies in the modern sense. The *parlements* were responsible for registering and implementing royal decrees or hearing appeals from local magistrates, and their functions were thus primarily judicial.

heretical and attempted to enforce their own religious views in towns and cities that they controlled. With considerable skill, Henry IV kept the ship of state on an even keel. The country had been impoverished by decades of civil and international war; the allegiance of local princes to the crown had been compromised by religious differences; and the venal French system of purchasing local offices had resulted in the appointment of hundreds of officials whose loyalty to the crown depended on the king's continuing patronage and the successful collection of local taxes. Nonetheless, Henry survived in office until he was assassinated in 1610 by François Ravaillac, as he prepared to lead an army to recover disputed territory on the border with the Holy Roman Empire near Cologne. His son, who was almost nine years old, succeeded him as King of Navarre and King of France, although his mother, Marie de' Medici, was initially regent and effectively ruled on his behalf for seven years.

The uncertain peace of the subsequent years was interrupted by Condé's challenge to the crown in 1616 and the exile of the Regent from the court to Blois in 1617. The outbreak of the Thirty Years War in 1618, in the course of which France was relatively unscathed in contrast with the German lands, compounded the insecurity that the French state anticipated in 1621, when the temporary truce in the Netherlands was due to expire. In the Southeast, the Valtelline was the focus of continued hostilities between France and Spain, since it was a crucial route north to the Spanish Netherlands for troops who were recruited by Spain in the Duchy of Milan (which was part of the Habsburg empire). The stability of Louis's reign was also challenged for many years by the fact that, prior to the birth of his son in 1638, his erratic brother Gaston d'Orléans was the heir to the throne and his wife, Anne of Austria, was less supportive of her husband than he might have wished.

These domestic and international insecurities were alleviated by the appointment of the former bishop of Luçon, Richelieu, who became a cardinal in 1622 and was appointed chief minister to the crown two years later. Richelieu was a famously decisive, shrewd, and supportive minister who compensated more than adequately for the talents that Louis lacked. He fulfilled the same role for Louis XIII as Colbert did subsequently for Louis XIV, and was so widely recognized as the central figure in the government of the kingdom that contemporary authors competed to dedicate their works to him and thereby win the patronage that would support their social or political aspirations. For example, while it was not atypical of Jean-François Senault to dedicate his principal work, *The Use of the Passions*, to the 'most eminent' Richelieu, the length of the dedicatory letter—at fifty-eight pages—testified as much to the power of the dedicatee as to the obsequiousness of the author and the literary style of the period. Richelieu's tenure was marked by bold military action against a number of Huguenot strongholds, including most famously La Rochelle. La Rochelle was besieged by royal troops on 27 September 1627 and, after a full year, it conceded defeat on 30 October 1628. In the course of that siege, almost 15,000 of the town's total population of 27,000 died of hunger and associated sicknesses (Crété 1987). Richelieu and Louis dealt equally firmly with a revolt in Languedoc in 1632, which had been instigated by

Montmorency; following his capture and defeat, Montmorency was executed in Toulouse in October 1632.

Richelieu died in 1642 and the king died six months later, in May 1643. Once again the minority of the Dauphin, who was only four years old, and the regency of his mother threatened to destabilize the government of the kingdom. The fact that Anne of Austria's first minister, Cardinal Mazarin, was Italian provided an extra excuse for disloyalty to the crown. The peasant revolt of the *Nu-Pieds* in the salt flats of Normandy in 1639, and of the so-called *Croquants* in the Southwest in 1637 and 1643 (Parchnev, 1963), were symptoms of widespread social problems and the erosion of loyalty to the crown. They resulted from high taxes collected by corrupt royal officials, almost continuous civil war, marauding armies that despoiled the countryside in which they were billetted or through which they marched, and the growing divisions between the nobility—some of whom were also facing poverty—and the population from which they extracted rents. This was a period in which royal taxes paid for the extravagant lifestyle of the king's household, for purchasing the cooperation of disloyal princes and, especially, for the very high costs of foreign wars. Taxpayers did not receive any national benefits in return for their taxes, unless the uncertain security of the kingdom against further foreign invasion was considered an adequate compensation.

All these factors came to a head in the civil unrest known as the *Fronde* (1648–53). Louis XIV was only ten years old when the Paris *parlement* challenged the authority of the crown in 1648, ostensibly concerning the renewal of the *paulette*, which had been introduced originally by Sully in 1604 and had expired in 1629.[5] However, overt disagreements about the collection of taxes camouflaged a more fundamental opposition to the alleged authority of the crown, as exercised on behalf of the king by Mazarin and the Regent. When the citizens of Paris erected barricades on 26/27 August 1648 in defence of their *parlement*, the king and his court fled the capital until initial hostilities were suspended temporarily by the peace of Rueil in March 1649. This was not to last, however. The *Frondeur* nobles who had supported the *parlement*, led by Condé, exploited the compromise to which the crown had been forced and, for the following three years, France was once again sliding into anarchy with local revolts and threats to the central authority of the crown in various provinces as far apart as Normandy and Provence. The changing fortunes of the various parties in the years 1650–53 included two periods in which Mazarin was exiled temporarily, while poor harvests and outbreaks of the plague compounded the misery of the population in Paris and in provinces that were directly affected by civil unrest. The king's majority was officially announced in 1651, and Louis XIV eventually re-entered Paris in October 1652 and summoned Mazarin back to his former office.

[5] The *paulette* was an annual tax paid by royal office-holders, which was levied as one sixtieth of the annual income from an office and, in return, allowed officials to transfer their offices to others without the king's permission.

When resistance to the crown petered out, more slowly in Bordeaux than in Paris, the young king had learned lessons about political instability that he implemented vigorously in subsequent confrontations with provincial *parlements*, with the religious fundamentalism of Jansenists, and with the fickle disloyalty of nobles and royal officials. The *Fronde* marked a watershed between the weak, oscillating central government of the previous decades and the longest and most stable reign in European history. It also signalled the adoption of an absolutist theory of centralized royal authority that overshadowed innovative theories about the consent of the governed, which had been formulated and defended by critics of royal absolutism since 1560.

The political instability and civil wars that dominated civil life in France since the St Bartholomew massacre were very significant influences on those who penned political philosophy in that period. But their influence was not limited to political theorists. They also helped determine which authors survived, which ones remained in France, and who decided to emigrate and live permanently abroad. Those who remained in France and published philosophical essays could not have been unmindful of the dangers of expressing unorthodox views or, in contrast, the potential benefits, financial and otherwise, of dedicating their works to royal patrons or others who exercised political offices. The pressure on authors to conform to received opinions arose from the close links between philosophy and theology, and from the baneful influence of competing churches—which was usually applied through local *parlements*—that is discussed in the next section.

1.3 The Religious Context

Fundamental changes in the theologies and practices of Christian churches, which originated in the Holy Roman Empire and in Rome, significantly influenced philosophical writing in France in this period. While Luther was the leading theologian of reformation theology in German, Jean Calvin (1509–64) assumed responsibility in France for implementing the reform of traditional Christian doctrine. Following his conversion to a strict interpretation of the gospel, Calvin emigrated from France to Geneva where he remained—apart from a brief period in Strasbourg—for the rest of his life. He published the first edition of his summary of reformed theology, *The Institutes of the Christian Religion*, in 1536, and continued to expand its contents and publish amended editions in Latin and French until the final editions in 1559 (Latin) and 1560 (French). Calvin notoriously adopted a version of Augustine's theology of grace, according to which God predestines individuals for salvation or damnation, so that their eternal fate depends exclusively on that divine decision rather than on anything that individuals themselves can do. Calvin's challenge to Rome's understanding of the seven sacraments, by which divine grace was believed to be communicated to sinful souls, together with Luther's traditional theology of justification, were so radical that they were perceived as a repudiation rather than a reform of the Church's teaching.

In response, Rome and its civil allies in the Holy Roman Empire arranged a general church council in the northern Italian city of Trent.

Trent was a general council of bishops of the Catholic Church that had been requested insistently by the emperor, Charles V, to address accusations of papal corruption that were validly made by Luther and, possibly, to heal political and ecclesiastical divisions within the German lands that resulted from Luther's reforms. But the Pope, Paul III, was less interested in a reform of the papacy than in a restatement of orthodox Catholic teaching and a condemnation of the schismatic church in England and the heretical doctrines of reformers. The decision to convene the requested council was further delayed by the war between Francis I and the emperor, and by threats to papal territories from France and the Holy Roman Empire. The council therefore represented a political and doctrinal compromise between the objectives of reformers and those of the papal curia and between the competing interests of civil rulers who were invited to attend or send delegates.

The Council of Trent met intermittently during the years 1545–63, with only a minimal and unrepresentative attendance at the early sessions of approximately twenty-nine bishops from the Church's estimated total of seven hundred (O'Malley 2013, 4).[6] Despite initial hopes by some participants to find agreement with reformers, Trent defined the teaching of the Catholic Church concerning grace and the sacraments in terms that confirmed the doctrinal divisions with Lutherans and Calvinists, and it anathemized those who refused to accept its authority.[7] During this period, however, Calvin's reforms continued to attract increasing numbers of Christians in France, although they were classified unequivocally by Rome as heretical. The Council's uncompromising decisions and numerous anathemas left the French monarchy in a situation in which it had to decide between tolerating its Calvinist subjects or attempting to suppress their religious meetings and practices.

When deciding how to treat Huguenot 'heretics', France enjoyed more independence than many other kingdoms or principalities, because of its established Gallican policies. Francis I had signed an agreement with Pope Leo X—the Concordat of Bologna (1515)—which accepted a significant role for the king in the appointment of senior church leaders, and acknowledged the relative independence of the French church from Roman decisions. In keeping with the new dispensation, the crown transferred jurisdiction for heresy trials to the local *parlements* before 1540. Unfortunately, the religious divisions within French society coincided with political rivalries among some of its leading noble families and with pre-existing hostilities with foreign enemies, especially with England and Spain. The Regent's commendable attempts to find a peaceful middle ground within these fundamental political-religious conflicts failed,

[6] The council sessions were suspended for lengthy intervals; they were held only in 1545–7, 1551–2, and 1562–3.

[7] For example, the decree of 13 January 1547, concerning the disputed issue of justification, concluded with thirty-three canons, each of which identified a thesis that was potentially attributable to a dissenting Christian and ended with the phrase: *anathema sit* (may he be anathema).

and that failure resulted in periods of civil war and in the political pamphleteering by members of rival churches about the jurisdiction of civil powers in relation to Christian churches (which is discussed in Chapter 7).

The theological divisions between the Catholic and the Reformed churches, which overshadowed all features of French life for centuries, were also exacerbated by intramural rivalries within the majority church. The Jesuits had been founded by a Spanish priest (Ignatius of Loyola), their first general superiors were all Spanish, and they were generally perceived as a Spanish religious order during a period when France was continuously at war with Spain. They were also committed, by their constitution, to defending the universal jurisdiction of the Pope over Christian churches in every country and, by implication, the superiority of the papacy to the civil authority of kings. The Jesuits rejected the right of individual Christians to join a church of their own choice and, in keeping with Tridentine doctrine, they unequivocally characterized Huguenots as heretics. Cardinal Bellarmine expressed the view that was widely shared by his Jesuit confreres:

> Freedom of belief… is nothing but the freedom to err, and to err in the matter where error is most dangerous… Just as it is not beneficial to allow sheep the freedom to wander through the mountains… so it is not beneficial to allow the people freedom of belief after they have joined the one true faith. (2012, 86)

Bellarmine concluded that Christian princes should not grant freedom of religious belief to their subjects, but should 'see to it that the faith that the Catholic bishops and especially the Supreme Pontiff teach to be the true one is preserved' (2012, 82).

French authorities—including the Catholic episcopate, the *parlement* in the capital, and the University of Paris—were generally suspicious of the explicit Roman allegiance of the Jesuits. Étienne Pasquier (1529–1615) was a well-known lawyer who was appointed by the University of Paris to defend its interests and independence vis-à-vis these 'foreign' missionaries. Pasquier described the 'sect of the Jesuits' as a 'monster, which although neither secular nor regular, is both simultaneously and consequently has introduced an hermaphroditic order into our church' (1621, 312).[8] Pasquier went on to specify, in twelve propositions, what he meant by a Gallican church. He acknowledged the Pope as 'head, primate, and father of the fathers of the Catholic and universal church' (1621, 440). But this initial concession was qualified immediately by eleven further propositions, which included the following: a French king cannot be excommunicated by the Pope; the latter has no temporal jurisdiction or authority in the kingdom of France; French bishops acquire their independent authority by succession from the apostles, rather than from the head of the Church, and therefore the Pope is

[8] In Canon law, 'regular' referred to religious orders whose members took vows of poverty, chastity, and obedience and followed one of the traditional rules, such as that of St Benedict or St Francis, while 'secular' described priests who worked in parishes under the jurisdiction of the local bishop. Pasquier's arguments against the Jesuits' intrusion into the functions of the University of Paris in 1564 may have been revised before initial publication in 1594 in *Les Recherches* (I quote from the 1621 edn).

merely a first among equals; the 'Gallican Church' accepts the teachings of the Council of Trent concerning the ancient articles of the faith, but it does not accept the new disciplinary rules that it introduced. Finally, a general council is above the Pope and, for that reason, both the kingdom of France and the Gallican church reject papal claims to exercise jurisdiction or authority over either one of them (1621, 341).

Pasquier accused the Jesuits of adopting religious beliefs that were 'subversive of our state'; in his opinion, they 'began to mix up the state with their religion and since it is easy to slide from freedom to an unrestrained licence' they endorsed one of the most detestable possible heresies: 'that it is permissible to kill a prince who fails to conform to their principles' (1621, 312). Since the Jesuits failed to acknowledge the independence of the king's temporal authority and of the Gallican church, and were suspected of acting as spies or at least of being supporters of France's political enemies, they were expelled from the jurisdiction of the *parlement* of Paris in 1574 and departed from the French capital in January 1575. Following the proclamation of the Edict of Nantes, Henri IV made conciliatory overtures to former supporters of the Catholic League and, in that context, proposed re-admitting the Jesuits to France. The *parlement* of Paris was as opposed to this initiative as they had been supportive, in 1574, of the Jesuits' expulsion. Pasquier re-entered the fray with public advice to the king in *The Catechism of the Jesuits*, in which he complained that the Jesuits were not authorized 'by the ancient custom of the Universities or the novelty of their Bulls' to open schools for anyone other than seminarians; nonetheless, they had extended their original permission and included lay pupils and Jesuit seminarians side-by-side in the same colleges (1602, 122). Pasquier's famous critique was neither unique nor exaggerated; it merely expressed widely shared anti-Jesuit sentiments more trenchantly than many similar pamphlets from the same period.

Nonetheless, Henry IV issued the Edict of Rouen in September 1603 and allowed the Jesuits to return to their missionary apostolate in his kingdom. He went even further by inviting them to open a new royal college, under his special patronage and protection, at La Flèche in the Loire valley.[9] However, he refrained from granting permission for re-opening the Jesuit Collège de Clermont in Paris; when Louis XIII did so later, the college was renamed in his honour as *Louis le Grand*. As a special sign of his affection, Henri IV also ordained that, following his death, his heart should be preserved in the choir of the college chapel at La Flèche and that his portrait would adorn its walls. He could hardly have anticipated that his wishes would be implemented seven years later, when the whole college turned out to receive the late king's heart in a funeral cortège that filed from Paris to La Flèche (Anon. 1611).

In the months following the king's assassination in 1610, the *parlement* of Paris was particularly sensitive to expressions of disloyalty or political insubordination during the regency, and its members had not changed their minds about the potentially subversive influence of the Jesuits, even of those who lived abroad. William Barclay

[9] Mersenne and Descartes subsequently completed their humanities education at La Flèche.

(1546–1608) wrote a treatise entitled *The Power of the Pope*, which was published posthumously in 1609 and argued that ecclesiastical and political power are separate by divine law. The target of his arguments was the theory about the scope of papal authority that Robert Bellarmine had developed in various editions of *Controversies* (between 1586 and 1608). When Bellarmine replied with a *Treatise on the Power of the Supreme Pontiff in Temporal Affairs, against William Barclay* (1610), despite the fact that it was published in Rome and Cologne, the king's advocate general, Louis Servin (1555?–1626) requested the Paris *parlement* to condemn the book. The reason for the swift response was obvious. Bellarmine, who was one of the most well-known Jesuits of the period, had argued that the Pope had 'indirect' authority over kings and, when a king's support for heresy and schism made papal intervention necessary, the Pope could 'expel them [kings] from the Church by excommunication, and absolve the peoples from their oath of allegiance, and finally even strip them of their kingdom' (2012, 158).[10] Following heated debates, the *parlement* issued its decision on 26 November 1610:

> Having seen the book entitled *A Treatise concerning the Power of the Supreme Pontiff in Temporal Affairs against William Barclay*... The court... forbids all persons of every quality and status, on pain of the crime of lèse majesty, to receive, hold, communicate, print, cause to be printed or display for sale the said book containing a false and detestable proposition that leads to the subversion of the sovereign powers that were ordained and established by God, the rebellion of subjects against their prince, the withdrawal of their obedience... and the disturbance of public peace and tranquility. (*Extraict* 1610, 4)

The fact that the Regent was favourably disposed to the Jesuits and suspended publication of this decision did not diminish the hostility of the *parlement* to what it perceived as the continuing malign influence of the Society of Jesus in the kingdom of France.[11] When the Jesuits were expelled from France for a second time, in 1762, they were not accused of condoning tyrannicide or fostering civil disobedience but, ironically, of being too loyal to the crown.[12]

The hostile response of the Sorbonne and the Paris *parlement* to anyone who appeared to challenge their respective offices or jurisdiction was not limited to Jesuits. Some decades later, the French hierarchy, the Sorbonne, and the crown were equally opposed to the political and theological implications of Jansenism. Cornelius Jansen's commentary on St Augustine's theory of grace, *Augustinus*, was published posthu-

[10] Bellarmine offered numerous arguments in support of this controversial view, which mirrored the Huguenot justification of revolt against tyrants that is discussed in Chapter 7. Bellarmine argued that 'it is not lawful for Christians to tolerate an infidel or heretical king if he tries to lure his subjects to his own heresy or infidelity' (2012, 286) and that the jurisdiction to decide that question rested with the Pope. Thus, although pontifical authority is spiritual, 'indirectly, whenever spiritual matters are concerned, by inference and by necessary consequence... it deals with temporal matters as its secondary object' (2012, 185).

[11] Nelson (2005, 178–89) discusses this episode in detail.

[12] The bankruptcy of the Jesuit province in Martinique, under the supervision of a French Jesuit, Antoine Lavalette, and the decision to hold the Jesuits collectively responsible for the debts involved was the final immediate cause of the decision in 1672 (Thompson, 1996).

mously in Louvain in 1640. Those who read the book did not agree about what theory of grace and human freedom it proposed, and could not even agree on whether it contained the five theses that were subsequently condemned by Rome as heretical. But *Augustinus* certainly proposed that God had absolute discretion to confer or refuse the grace that was considered essential for the salvation of each person's soul, and its rejection of the ancient heresies of Pelagianism and semi-Pelagianism was so explicit that many readers concluded that Jansen defended the same theory of predestination as Calvin.

Following publication of Jansen's work, the Catholic Church and the kingdom of France were convulsed for many decades by extremely acrimonious disputes about grace, human freedom, and predestination. The Jesuits joined these theological controversies to defend a theory of limited natural human freedom (without supernatural divine grace) that had been developed by one of their most famous theologians, Luis de Molina (1535–1600). The nuns at Port Royal provided an alternative focus for those who supported Jansen, and they were ably assisted by the leading Jansenist theologian, Antoine Arnauld (1612–94), and more notoriously by Blaise Pascal*. Despite the ongoing controversies about what *Augustinus* actually taught, the Sorbonne identified five theologically unorthodox propositions that had allegedly been defended by Jansen and they forwarded them to Rome for condemnation in 1649. On 31 May 1653, in a bull *Cum Occasione,* Pope Innocent X condemned the five propositions as heretical. Pope Alexander VII confirmed the disputed propositions as Jansenist in the bull *Ad Sanctam Beati Petri Sedem* (1656). The French crown authorized the implementation of this latest papal decision in 1657, and the French clergy with royal support composed a formulary that repudiated the five condemned theses and required suspected theological dissidents and all appointees to church offices to sign it. Reluctant Jansenists, who denied that Jansen had ever written or defended such theses, drew a distinction between the right of the Church to define its own doctrines (which they accepted) and its competence to make a factual claim that the five propositions were found in Jansen's work (which they rejected). Accordingly, they signed the formulary when required to do so, but with the mental reservation that they were not disagreeing with Jansen.

The sensitivity of the French bishops and the crown about Jansenism was a symptom of a fundamental concern about challenges to their respective authorities, in relation to the jurisdiction of the papacy, the proliferation of dissident theologies (including Calvinism), and the political ambitions of those who opposed the crown for allegedly religious reasons. When Hardouin de Péréfixe was appointed archbishop of Paris in 1664, he re-affirmed Pasquier's defence of Gallicanism a century earlier and endorsed the views of the Theology Faculty concerning the jurisdiction of the king in ecclesiastical affairs, in six propositions:

1. That the doctrine of the Faculty of Theology of Paris is not that the Pope has any authority over the temporal power of the king; …

2. That the doctrine of the Faculty of Theology is that the king does not recognize, and does not have, any other superior in temporal affairs except God; . . .
3. That it is the doctrine of the same Faculty that the king's subjects owe him such fidelity and obedience that they cannot be dispensed from it for whatever reason;
4. That the same Faculty does not approve nor has it ever approved any propositions contrary to the king's authority, the true freedom of the Gallican Church, or the canons in force in the kingdom;
5. That it is not the teaching of the Faculty that the Pope is above a general Council; . . .
6. That it is not the teaching or a dogma of the Faculty that the Pope is infallible when he lacks agreement from the Church. (Jourdain 1862–66: I, 221)

These theological principles were approved by the king on 4 August 1663, and were subsequently adopted as official policy concerning Church–State relations in the Four Articles of 1682, which confirmed the autonomy of the French Church from Rome (Cragg 1970, 24).

Jansenists thus found that the Papacy, the French bishops, and the crown united in condemning them for different reasons that coincided only in the object of their distrust. They enjoyed a brief reprieve during the papacy of Clement IX who, in 1669, relaxed the conditions under which signing of the formulary was legally required. This interim period of partial toleration came to an end ten years later, under Pope Innocent XI, and Louis XIV had by then also strengthened his resolve to suppress theological dissidents in his kingdom. The king eventually sent troops to enforce the closure of Port Royal in October 1709 and to expel the remaining nuns. Two years later, the convent buildings were razed—the same kind of treatment that had often been applied on previous occasions to Huguenot buildings. By doing so, Louis XIV was not taking sides in a purely theological controversy about grace between disputing Christians. He was defending the absolute power of the crown against those whose theologies had subversive political implications, especially of freedom from obedience to the crown or, at the limit, of the moral permissibility of killing a prince who was classified as heretical and oppressive of the 'true faith'. The political implications of Jansenism were made explicit in a number of fragments in Pascal's *Pensées*, the most explicit of which was excluded from the original Port Royal edition (1670):

> Those things that are most unreasonable in the world become the most reasonable because of human corruption. What is more unreasonable than to choose the first son of a queen to govern a state? One does not choose the passenger who owns the largest house as captain of a ship. This law would be ridiculous and unjust; but because people are that way and will always remain that way, the law becomes reasonable and just, because who else could be chosen? . . . The oldest son of the king—that is clear, there is no dispute. Reason can do no better, because civil war is the worst evil possible. (Fr. 786/782: II, 899)

Pascal's reflections on the absurdity of the Salic law, as a pragmatic but unreasonable solution to finding an undisputed criterion by which to choose a king, were consistent

with his views about the corruption of human nature. Without challenging the authority of Louis XIV, therefore, Pascal acknowledged his right to rule the kingdom of France as nothing more than the best way to avoid civil war among people who were corrupted by original sin rather than as an ideal that was chosen by God.

The first expulsion of the Jesuits and the harsh treatment of Jansenists exemplify one of the constant dangers of publishing unorthodox religious or theological views in France. The Roman Inquisition had no direct jurisdiction within the kingdom of France and, although Galileo's condemnation in 1633 was widely reported and had a chilling effect on the publication of novel theories, it was not possible for papal authorities to investigate or punish religious dissidents there without the co-operation of the French episcopate and, more importantly, the approval of the crown or its local representatives. It is difficult to gauge in retrospect the extent to which fear of being accused of heresy affected what authors risked publishing in early modern France. Briggs estimated (1998, 12) that a 'derisory figure' of a mere two thousand heretics were brought to trial in France in the 1540s. Although that was a small percentage of those who had joined the Reformed church and were officially classifiable as heretics, it seems a rather high number in relation to those whose preaching, publishing, or advocacy of religious reform was sufficiently public to attract official notice. The speed with which leaders of the Reformed Church emigrated from France to the relative security of Geneva also suggests a real threat to their lives rather than cowardice on their part, and the unfortunate fate of Pierre de la Ramée (1515–72) during the third day of the St Bartholomew massacre confirms the danger to which those who failed to flee quickly enough were exposed. The conclusion suggested by the oppression of reformed Christians in France, then, is not that people were put on trial and punished because of their religious beliefs as such, but that they risked severe punishments because of the political or social interpretations that may have been attributed to those beliefs. Such threats constituted an ongoing impediment to an open discussion of philosophical opinions.

A few notorious trials and executions for heresy were sufficient to confirm the permanent danger for dissidents, such as that of Lucilio Vanini (1585–1619). Vanini was charged at Toulouse with atheism, heresy, and 'other crimes' and there were hints that he had been expelled from his friary in Lyon for debauchery. Although the evidence against this unfortunate Italian friar is difficult to identify and verify, the Toulouse *parlement* tried him, found him guilty, and on 9 February 1619 issued the following verdict: that the public executioner should 'cut out his tongue, strangle him, and then burn him at the stake to which he is tied and scatter his ashes in the wind' (Vaïse 1864, 29). The sentence was implemented immediately, without time or leave to appeal. The treatment of Vanini contrasted markedly with that of another Italian philosopher, Tommaso Campanella (1568–1639), who came to France to seek asylum. Campanella had been tried by the Roman Inquisition, tortured, and spent almost thirty years in prison before being released and seeking asylum in France, where he spent the final years of his life under the protection of Richelieu. Campanella's public defence of

Galileo was apparently no barrier, at least in Paris, to enjoying freedom from further indictment or punishment.

The impact of the Vanini verdict reverberated throughout France and beyond for decades. Martin Schoock published *The Admirable Method of the New Philosophy of René Descartes* in 1643, in the course of which he accused Descartes of immorality and atheism. Despite the fact that both authors were then living in the United Provinces and that the allegations were submitted to the University of Utrecht and the city magistrates, rather than to the corresponding authorities in Paris, Schoock reminded his readers that Vanini had been burned for similar offences in Toulouse. He insinuated that Cartesian philosophy was a subtle introduction of atheism into the body politic that resembled Satan's temptation of Eve, and that its author deserved the punishment usually reserved for corrupt heretics such as Vanini: 'This man competes with Vanini in this sense: while giving the impression of combating atheists with his invincible arguments, he injects the venom of atheism delicately and secretly into those who, because of their feeble minds, never notice the serpent that hides in the grass' (1643, 13 unpaginated preface).

A similar distinction between a widespread fear of condemnation and a relatively low rate of conviction might be applied, in retrospect, to the punishment of alleged witches or those who were accused of causing demonic possession. There was a significant and sudden increase in the frequency of trials for witchcraft in early modern France.[13] While the number of witch trials at that time has been exaggerated—the total number in Europe, based on archival research, is estimated at 45–60,000 (Rowlands 2013, 452) rather than millions—even that reduced number is alarming when one considers the prevalent use of torture to gather evidence against the accused and the death by public burning that was inflicted on those found guilty. In contrast with other jurisdictions, however, the *parlements* in France reserved the right to hear appeals from trials for witchcraft and to confirm their verdicts and, in exercising that function, the *parlement* of Paris had jurisdiction over a significant portion of the kingdom and set a standard for other regional *parlements*. The Paris *parlement* upheld death sentences for witchcraft in only 104 of the total 904 cases that were appealed between 1550 and 1625 (Monter 2013, 219–20), and the total number of death sentences remained relatively low in subsequent decades. By the end of the seventeenth century, scepticism about the very reality of witchcraft and concerns about the reliability of evidence submitted at trials contributed to the elimination of trials for witchcraft.

Nonetheless, the threat of a trial and the severity of the punishments endured by those who were successfully convicted remained an effective deterrent against expressing unorthodox views when the boundaries between atheism, immorality, and

[13] I have relied on Certeau (1970), Clark (1997), Ferber (2004), Levack (2006), and Levack (2013) for the following paragraphs about the relationship between witchcraft and philosophical freedom in early modern France.

witchcraft were so porous that Bodin identified atheism and the immorality that it allegedly facilitated as the primary evil in witchcraft (see 6.1). Clark (1997, 427) concluded that 'demonology in all its manifestations was not merely saturated with religious values; it was inconceivable without it'. In fact, such conceptual interdependency extended beyond religion to philosophy and ethics. Philosophical theories of the human mind and of God, and the interpretation of anomalous natural events as the result of natural magic or demonic magic, all shared the same conceptual framework. Examples of unusual human behaviour could have been understood equally plausibly as manifestations of God's power or that of the devil, since (for believers) both were equally real and invisible. Human history could even be conceived globally, in Manichean terms, as an unresolved contest between God and the devil. When this interpretation was applied to the circumstances that prevailed in early modern France, it was a simple move to recognize local manifestations of demonic influence in the activities and beliefs of 'heretics' and to believe that the appropriate remedy was to invoke God's power, through the sacraments or other religious rituals, to overcome that of the devil. The swift transition from identifying some belief or practice as unorthodox to punishing its proponent is illustrated by the following examples.

Pierre de Bérulle (1575–1629), who was promoted to the rank of cardinal in 1627 and was acknowledged as a significant contributor to Catholic theological literature about religious mysticism, published two books in 1599 under the pseudonym Léon d'Alexis: *A Treatise on the Possessed* and *A Discourse on the Possession of Marthe Brossier*. Bérulle claimed that God, as creator, had matched various creatures with the four types of reality that were available at creation: angels to intelligence, animals to sensitive reality, plants to vegetative reality, and the elements to what he called 'existence'. As a result, the divine artificer had no unique type of reality available when creating human beings and had to resort to a combination of all four types.

> Thus the creator situated man, who is his image, at the centre of the world, that is between Heaven and Hell in respect of his residence; between time and eternity in respect of his duration; between God and the devil in respect of his freedom; and between Angels and animals in respect of his nature… man partly shares Angelic nature and partly corporeal nature. (1599, fols. 11v–12v)

This theory that human nature shares certain features with angels 'explained' how it was possible for devils (who were understood as corrupt angels) to enter into and take control of a human being and, according to Bérulle, the case of Marthe Brossier confirmed that interpretation. Bérulle also exploited this alleged case of possession to defend the jurisdiction of ecclesiastical authorities to interpret Brossier's behaviour, rather than the physician appointed by Henry IV, and to confirm the exclusive power of the Catholic Church to overcome the devil's power and to establish God's kingdom on earth. For Bérulle, therefore, his philosophical theory of human nature, his religious convictions, his political support for the Catholic League, and his theological interpretation of alleged possessions provided both a coherent interpretation of the

activity of one unfortunate woman and a clear decision about the treatment that she allegedly deserved.

This issue of interpreting extremely unusual behaviour recurred in another more famous case of alleged possession at Loudon in 1632. Hagiographical lives of saints often included reports of mystical experiences, transports, and visions, and it was frequently difficult for church authorities to decide whether such incidents were signs of God's intervention or were attributable to diabolical manipulation. When the superior of an Ursuline convent in Loudon, Mother Jeanne des Anges, claimed that the parish priest, Urbain Grandier, had caused her to be possessed and when many other nuns in the same convent made similar charges against him, Grandier was convicted and burned at the stake on 18 August 1634. Grandier's sentence exemplified the arbitrariness with which a judicial process that was apparently lapsing into desuetude could be applied with extremely punitive effect if alleged reasons of state were introduced against an accused. Grandier had spoken in favour of the governor of Loudon, Jean d'Armagnac, when he was involved in a confrontation with Richelieu's representative about the destruction of a local castle and he had written a critique of clerical celibacy that was burned with him. These supplementary features of his case were probably sufficient to resolve doubts about the reliability of other evidence against him and to confirm his fate.

Alleged witchcraft and demonic possession thus provided critics of unorthodox religious or philosophical views with an extremely vague allegation with which to charge defenders. Since the same phenomena were open to extremely divergent religious interpretations, it was very difficult for the accused to mount a successful defence. In those circumstances, the authority of the judges rather than the quality of the evidence was decisive. Guillaume du Vair* was the author of a number of ethical essays, which are discussed in 6.3. However, he was also First President of the *parlement* of Aix, which convicted Louis Gaufridy of kidnapping, the seduction of allegedly possessed Ursuline nuns, magic, witchcraft, and other unspecified abominations (Ferber 2004, 70–88). Despite the fact that he was a priest, Gaufridy was burned at the stake on 30 March 1611 within the jurisdiction over which the author of *The Moral Philosophy of the Stoics* presided.

In summary, the interpretation and judicial assessment of witchcraft and related phenomena in early modern France was inextricably related to the conceptual framework, religious controversies, and political instability within which philosophical discussions of the period occurred. Recent studies have highlighted the extent to which treatises on witchcraft—such as Bodin's famous *Demon-Mania*—may have misrepresented the actual jurisprudence of the courts (Monter 2013, 230). The members of *parlements* that heard appeals against conviction were more likely to have applied Montaigne's scepticism than Bodin's religious interpretation to the contested reality of witchcraft. Just as Heinrich Kramer's infamous *Malleus Maleficarum* was a clerical interpretation of alleged phenomena associated with magic and witchcraft, those who commented on the same phenomena one century later, in France, may have been

expressing their own religious or philosophical theories rather than reporting the judicial treatment of those who were accused of consorting with devils. For example, the detailed accounts of alleged sexual orgies at sabbats reflected the moral abhorrence of their authors rather than the behaviour of devils. Pierre de Lancre (1553–1631) had been specially charged by Henri IV to rid the southwest of his kingdom of witchcraft. His *Description of the Fickleness of Evil Angels and Devils* (1612) accepts another author's report of homosexual contact between 'the devil' and the men who attended sabbats.[14] Those accused of witchcraft or of causing the possession of others were often the unfortunate subjects onto whom religious zealots, political opponents, or even civil authorities projected accusations that were sufficient at least to silence them and, if convicted, to punish them severely.

1.4 Philosophy Teaching in France

During the sixteenth and seventeenth centuries, philosophy was generally not studied at university but in the final two years of a student's preparatory education at institutions that were called *collèges de plein exercise*. The content of those courses, the medium and style of teaching, and the educational benefits that successful students might have hoped to acquire were significantly different from what would be expected in philosophical studies today.

The colleges were officially linked with universities as subsidiary institutions in which young students acquired a basic education, in preparation for higher studies in medicine, law, or theology at university. Thus, in sixteenth-century Paris, there were approximately forty such schools, under secular control and under the supervision of university authorities, since the universities retained exclusive control of the power to grant degrees. Those who attended college—who were all boys, since there were no schools for girls[15]—usually followed a six-year course of studies in the humanities, in which all their lessons were conducted in Latin. They also studied rhetoric and elementary geography, and they were introduced (some very reluctantly) to ancient Greek. Since there were sixteen universities in the kingdom of France in 1600, the pattern of formal affiliation of colleges with local universities was repeated in most of the larger towns. The operation of such colleges changed significantly with the arrival in France of members of the Society of Jesus in the 1560s. The Jesuits had been founded with an explicit Counter-Reformation agenda, after the Council of Trent, and they perceptively understood the opportunities for proselytizing in schools. Within two centuries, they had founded over a hundred colleges in France and, despite being expelled from France during the period 1594–1603, they became the major contributor to

[14] 'Johannes d'Aguerre reports that the Devil, in the shape of a male goat, had his member in the behind and he knew the women by agitating and pressing it against the women in front' (1610, 217).

[15] Girls were allowed to attend *petites écoles*, which provided a very elementary introduction to reading and writing and were often established in private homes where local children, both Catholic and Protestant boys and girls, could learn their ABC together (Pittion, 2011).

French college education. In comparison, the Oratorians or Doctrinaires controlled approximately one quarter as many colleges during the same period.

In addition to the network of municipal and Catholic colleges, the Reformed Church implemented the limited freedom it enjoyed after the Edict of Nantes to found a number of academies. The total number of these institutions was never large and, in the 1620s, there were five functioning Huguenot academies in towns that had a significant Calvinist population: Nîmes, Sedan, Saumur, Montauban and Die (Pittion 1986 and 2011). These academies were notoriously underfunded, they had relatively few pupils in comparison with their Catholic counterparts, and they also differed from them in two other respects; they used French rather than Latin as their teaching language (although their students also studied Latin and elementary Greek), and they were anomalous in adding a two-year theology course to the end of the philosophy cycle to prepare those who wished to become ministers in the Reformed Church. The fragile sustainability of the reformed academies suffered a fatal outcome when the Edict of Nantes was revoked.

Thus the majority of French students completed a basic humanities education in *collèges de plein exercise*, after which they had the option of promotion to the philosophy cycle in the same *collèges*, although most students (or their parents) decided not to pursue that course. The philosophy curriculum involved a relatively uniform scholastic programme of studies, which usually included logic and ethics in the first year, and physics and metaphysics in the second year. The order of the sub-disciplines could be changed locally, however; for those who thought that more general considerations should precede those that are less general, metaphysics could precede physics. Likewise, the total length of philosophical studies could vary from one college to another. In the Jesuit college at La Flèche, for example, non-clerical students studied side-by-side with seminarians for three years of philosophy: logic in first year, physics and mathematics in second year, and metaphysics in third year. The amount of time devoted to mathematics, as one part of physics, could be as little as one hour per week. It included a brief study of Euclid, but also astronomy, optics, music, mechanics, surveying and the study of military fortifications.[16]

The content and objectives of philosophy courses were also significantly different from their modern equivalents. The dominant feature of all philosophical studies in this period was that they derived almost exclusively from commentaries on Aristotle, the most important of which in Catholic colleges were those written by Thomas Aquinas. Of course scholastic professors were not unanimous in their choice of Aquinas as an Aristotle commentator; although the Jesuits' *Syllabus of Studies* gave priority to Aquinas, there were also supporters of Duns Scotus and others (Ariew 1999, 39–57). The role of philosophy as a 'handmaiden' to the higher discipline of theology

[16] The Jesuit *Syllabus of Studies* recommended that students study mathematics for three-quarters of an hour, but the total number who attended even that minimum tuition was no more than seven per cent of the enrolled students (Dainville 1978, 328).

meant that the former had to be adjusted and adapted to conform to official church teaching. Thus the *Syllabus of Studies* that regulated Jesuit college education required professors of philosophy 'not to depart from Aristotle' in any important philosophical question unless Aristotle's views disagreed with what was generally taught in colleges or unless they were 'against the faith' (Fitzpatrick 1933, 168). The Church and the Faculty of Theology were not the only institutions that monitored the content of philosophy courses. Since ethics was understood as a propaedeutic to the study of law and physics had a similar role in relation to medicine, the universities that were responsible for educating the next generation of public servants and royal officials were as conservative in regulating the content of those parts of philosophy as theologians were about metaphysics.

The extent to which philosophical studies were limited to commentaries on Aristotle was reinforced by the condemnation of deviations from the standard curriculum by the University of Paris, and by the textbooks that were published during this period for use in course lectures. Jean Bitault, Etienne de Claves, and Antoine Villon convened a public meeting in Paris for 24/25 August 1624, at which they planned to exhort listeners to challenge the hegemony of Aristotle in the curriculum and to consider the merits of other philosophical authors. A large crowd, estimated at about one thousand, turned up for the meeting to discuss fourteen theses that were critical of Aristotle and had been drafted by the conveners. Before they even began, however, the meeting was banned and, at the request of the Sorbonne, the Paris *parlement* decreed that the speakers be banished from the jurisdiction of Paris and that no one be allowed to teach anything contrary to the ancient, approved authors. 'It is forbidden to everyone, on pain of their lives, to hold or to teach any maxims contrary to the ancient, approved authors, or to engage in any disputation apart from those that are approved by the doctors of the Faculty of Theology' (Adam 1910, 87).

This intervention to protect Aristotelianism was typical of a pattern that was often repeated during the seventeenth century when university or royal authority was invoked to suppress alternatives to scholastic philosophy. Since the Sorbonne and the French episcopate monitored dissident religious views, both institutions were equally intolerant of philosophical theories that were deemed to support unorthodox theological opinions. Since the Jesuits kept an equally keen eye on whatever they judged to be inimical to the authority or influence of the papacy, it was difficult for any novelty to escape condemnation as long as its critics could persuade the crown that its dissemination was likely to disturb the peace of the kingdom.

During the latter half of the seventeenth century, therefore, the proponents of Descartes's philosophy were suspect because of its perceived affinity with Jansenism or, at least, with the Augustinian theories from which both movements borrowed key ideas. To suppress this philosophical innovation, its critics invited the University of Paris, in 1671, to implement its previously adopted rules and statutes that forbade teaching anything other than Aristotle. On this occasion, however, the *parlement* of Paris refrained from endorsing the decision; the satirical prohibition that had been

circulated by critics of Aristotle, the *Arrest Burlesque*, mocked the intervention of judicial authorities to decide the truth or plausibility of philosophical theories. 'For many years an unknown person called Reason attempted to enter the schools of that university by force and . . . adopting surnames such as Gassendists, Cartesians, Malebranchists . . . got into a position to expel the said Aristotle from that university.' The *Arrest* ridiculed this intervention of reason as being contrary to the laws and customs of the university, where Aristotle had always been acknowledged as an unchallengeable judge, and it even commanded the blood not to circulate any more because of the opposition of the medical faculty to the novel theory of blood circulation (Boileau 1713, 349–50).

This almost exclusive focus on Aristotle is also evident in the most popular textbooks used and in the quality of the professors who relied on them. One such text was written by Eustace Asseline* (who is often known by his religious name in Latin, Eustachius à Sancto Paulo) and was republished frequently in France during the seventeenth century. The *Quadripartite Summary of Philosophy* included the traditional four parts: Logic, Ethics, Physics, and Metaphysics. The quality of philosophy professors and their style of teaching reflected their collective adherence to tradition. Professors of philosophy in the *collèges de plein exercise* remained in office for a relatively short period, typically not more than five years. They were usually recent graduates who spent a few years teaching before embarking on a more lucrative career elsewhere or, in the case of colleges under religious control, on a career in pastoral work in parishes or missionary work abroad. In fact, to the extent that most professors of philosophy had not studied their subject to doctoral level and were priests who had taken a degree in theology, their ambitions for promotion to ecclesiastical offices made their teaching even less innovative than could be explained simply by their own poor education. Aristotelianism was secure as long as church authorities protected it as the handmaiden of their preferred theologies, both Catholic and Calvinist, and also controlled most of those who held temporary posts as philosophy teachers.[17]

The style of teaching adopted by such temporary exponents of Aristotle matched the limited range of sources to which they were publicly bound.

> The method of teaching philosophy . . . showed little sign of development . . . a knowledge of the four traditional sciences was always conveyed in a uniformly uninspiring and stereotyped manner. As a rule, professors taught *ex cathedra*, in Latin, and in such a way that there was little time for student participation. (Brockliss 1987, 188)

Physics or natural philosophy, while also being based on the content and order of exposition of Aristotle's texts, was the only part of the traditional philosophy curriculum that adapted gradually to contemporary discoveries, especially in astronomy. The radical Aristotelian distinction between the sublunary world and the heavens, and the

[17] Another reason for the casualization of the profession was the low salaries available, which were completely inadequate to support even an unmarried man. Thus there was nothing like a permanent professional professoriate in French colleges of the seventeenth century.

traditional theory of the incorruptibility or unchangeability of the heavens, were not easily reconciled with the observation of sunspots and the apparent motions of comets. Nonetheless, we know from the Duhem–Quine thesis that scientific theories cannot be disconfirmed by experimental or observational evidence without assuming the reliability of all the collateral hypotheses on which any given instance of potential disconfirmation relies. Scholastic natural philosophers in French *collèges* seem to have been intuitively aware of that; they could accommodate observations that were apparently inconsistent with their natural philosophy by suggesting that they were optical illusions, that they resulted from deficiencies in the experimental apparatus used (such as defects in the lenses of telescopes) or by adding an extra hypothesis to Aristotelian natural philosophy to accommodate stubborn facts. For that reason, as Ariew observes (1999, 97–119), and as Shapin and Schaffer demonstrated in the controversy about the air-pump (1985), it was impossible—simply by invoking new observations in astronomy—to disconfirm the foundations of an integrated cluster of theories that was shrouded in the authority of Aristotle and his commentators. Nonetheless, over a number of decades, the natural philosophy of the scholastic professors creaked under the unsupportable weight of innumerable supplementary hypotheses and it gradually lost credibility in comparison with the simplicity, explanatory power, and experimental compatibility of alternative theories proposed by its critics.

By the end of the seventeenth century, the focus of research in natural philosophy had shifted, both theoretically and institutionally. Cartesians were winning the contest, at least temporarily, for an alternative view of the natural world, and the venues in which victory was claimed were not scholastic colleges or quadripartite Latin commentaries on Aristotle, but in the parallel world of independent academies (1.6 below). Brockliss (2006) describes how the crown's objections to developments in natural philosophy waned gradually, while it continued to keep a watchful eye on ethical education as more significant for those who subsequently pursued the study of law and aspired to royal administrative or legal appointments. The centralized government of the kingdom could more easily tolerate changes in natural philosophy and, insofar as such innovations were supported by experimental work, they might even support the defence of the kingdom by the production of new weapons or an improvement in military fortifications.

The unflinching dedication of philosophy teachers to commentaries on Aristotle in the *collèges de plein exercise*, and their principled opposition to innovations, is reflected in the following stark fact: apart from Francisco Sanches*, who held a chair in philosophy temporarily at the University of Toulouse while awaiting appointment to a similar post in medicine, not one of the authors who made a significant or novel contribution to French philosophy in the early modern period was a professor of philosophy. In the case of Pascal, he never even attended college. Those who did attend college and later criticized the inadequacy of their education reflected more than the retrospective evaluation of disgruntled past pupils. Montaigne* wrote two essays concerning education, and claimed that we 'often waste years training children for occupations in which they never achieve anything'

(1993, 167) and that the time spent in learning Greek and Latin at school was also wasted, since both could be learned in the same manner as one's vernacular. His principal objection, however, was that his education was uncritical. 'Teachers are forever bawling into our ears as though pouring knowledge down through a funnel; our task is merely to repeat what we have been told' (1991, 169). The result was predictable:

> We know how to say, 'This is what Cicero said'; 'This is morality for Plato'; 'These are the *ipsissima verba* of Aristotle.' But what have *we* got to say? What judgements do *we* make? What are *we* doing? A parrot could talk as well as we do. (1991, 154)

Descartes's assessment of his college education was equally uncomplimentary. While he acknowledged the benefits of studying mathematics, he was less convinced about the educational value of his philosophical studies:

> I shall say nothing about philosophy, except that it has been practised by the best minds that have appeared over many centuries, and yet it still contains nothing that is not disputed and consequently doubtful… And when I considered how many different opinions there may be about the same thing which are defended by the learned, even though no more than one of them can ever be true, I regarded almost as false everything that was merely probable. (VI 8: D 9–10)[18]

Those who were dedicated to commentaries on Aristotle were not content merely to repeat his opinions and adapt them to new observations or cultural challenges. They also defended the value and integrity of their educational practices and joined forces, when possible, with civil and ecclesiastical authorities to censor the publication or dissemination of alternative theories.

1.5 Censorship

The papacy had operated for centuries a system of proscribing books that were deemed dangerous to faith and morals. This was formalized by the Fourth Session of the Council of Trent (8 April 1546), and subsequently implemented by the *Index of Forbidden Books* (Innocent XI, 1704), which was updated and republished in revised editions until 1966. The immediate effect of the *Index* was to impose a moral obligation on members of the Catholic Church to get prior permission to publish books that discussed faith or morals, and not to own or read copies of books that had been censored and listed in the *Index*:

> The Council decrees and determines… that no one may print or have printed any books about sacred subjects without the name of the author, nor in future sell them or even keep them in his

[18] In the heat of controversy, Descartes often expressed a less diplomatic version of this critique. For example, in a letter to Voetius, who championed the teaching of Aristotelian philosophy at Utrecht, Descartes wrote: 'The standard philosophy, which is taught in colleges and universities, is nothing more than a jumble of beliefs that are mostly doubtful (which is apparent from the never-ending disputes to which it gives rise) and useless (as long experience has already shown). For no one has ever been able to derive any benefit from prime matter, substantial forms, occult qualities, and similar things' (VIII–2, 26).

possession, unless they have first been examined and approved by the local ordinary … (Tanner II, 665)[19]

Typically, the power to grant prior approval to publications was vested in the local bishop of the diocese or the provincial superior in the case of regular clergy. Prior censorship was not limited to members of the Catholic Church, however; Hotman* and Bèze* both submitted their work for approval to the council in Geneva (see 7.3), and only the former was approved. The universities also exercised a form of retrospective censorship on publications by banning those that were deemed misguided or morally misleading. Finally, French *parlements* banned books that were brought to their attention, even if they were published outside France (as in the case of Suarez and Bellarmine, which were discussed above) if they were judged to be seditious or likely to disturb public order.

Despite their disparate objectives, however, the papal system of censorship often supported temporary alliances in France between church, state, and university authorities to suppress dissident authors. Thus the revised *Index* up to 1681 included many of the authors that are discussed in the following pages, including Bodin's principal works, Montaigne's *Essays*, Charron's *Wisdom* and, notoriously, certain editions of Descartes's works that were provisionally banned until such time as they were 'corrected' (Clarke 2006, 414–16).[20]

The authority to censor publications in France was entrusted to the chancellor for most of the seventeenth century, and this office became more effective when Pierre Séguier was appointed chancellor in 1633. The range of potential censors or those who could ban a book post-publication is illustrated by the efforts made by Mersenne, on behalf of Descartes, prior to publication of the *Meditations*. Descartes prefaced his book with a 'Letter of Dedication to the Sorbonne' in which he requested approval from the 'very wise and renowned Dean and Professors of the Faculty of Sacred Theology' in Paris, and he also applied to the chancellor for a *privilège*. The first edition, which appeared in Paris in 1641, included on the title page '*Cum privilegio, & Approbatione Doctorum*' [with the *privilège* and the approval of the doctors]; he had the former, but not the latter. The Sorbonne failed to approve his book and the disappointed author subsequently claimed that he had never requested it.

Following the centralization of the office of censorship, which also provided protection of the author's copyright within the kingdom of France, there was a clear choice between two ways of publishing in the early modern period in France. One was to

[19] Trent returned to this topic to establish an Index of Forbidden Books in the 18th and 25th sessions (Tanner II, 723–4, 797).

[20] The *Index* applied to books rather than authors, and therefore had to specify the precise titles that were banned. In the case of Bodin, it mentioned the *Demon-mania*, *Method for the Easy Comprehension of History*, *Six Books of a Commonwealth*, and *The Theatre of Univeral Nature*. Even Bellarmine's *Controversies* (Vol. 1) was included on the *Index* for a brief period, because he argued that civil rulers acquired their authority from God indirectly through the consent of their subjects rather than from the Pope (Bellarmine, 1965).

apply for a royal *privilège* in advance; the alternative was to publish without permission and risk subsequent censure (Roche 1984a, 82). It is evident from the huge number of books and pamphlets that were published in France in the seventeenth century that many authors failed to apply for approval by the royal censors. Some arranged for printing without a *privilège*; some published anonymously (as Descartes had done with his first book in 1637); some published with a pseudonym, and some even inserted a false publisher's name and/or place of publication. Thus, despite the censoring and banning of books, there seems to have been no effective control over authors who were willing to risk the penalties that might follow unauthorized publication, and even books that had been banned by the Inquisition were available to readers in France who were sufficiently keen to acquire copies.

One is not surprised, then, at the sheer volume of publications and the size of library collections in seventeenth-century France. A review of libraries in Paris in 1644 revealed that twenty religious houses and seventy individuals had libraries that contained more than 3,000 bound volumes, and that the Minim library in Place Royale, where Mersenne lived, had more than 8,000 volumes within three decades of its original foundation (Martin and Chartier 1982–4, I, 549–50). The publication and dissemination of books prospered despite the ecclesiastical and civil authorities that claimed authority to approve them in advance or to condemn them after publication.

Finally, within France, some of the newly established academies that enjoyed royal patronage, such as the Academy of Printing and Sculpture and the Academy of Inscriptions and Medals, began to act as arbiters of taste and competence in their respective areas of responsibility. The *Académie royale des sciences* soon followed suit and, at least with respect to their own members, they withheld official approval from publications in natural philosophy that failed to meet their standards. In a word, civil, ecclesiastical, and university authorities in France exercised an extensive, public censorship of philosophical publications and one of the main beneficiaries of its limited efficacy was the protected Aristotelianism of the colleges.

1.6 French Academies and Conferences

While French colleges provided young men with access to the scholastic learning that tradition prescribed, the kingdom of France in the sixteenth and seventeenth centuries also witnessed the emergence in parallel of widely disseminated academies and salons, the viability of which often depended on the support of royal patrons and the continued interest and resources of the individuals who founded and sustained them.[21] Some of the first French academies were modelled on their earlier Italian counterparts, especially the Platonic academy founded by the Medici in Florence, and family links helped

[21] Pierre Michon (aka Abbé Bourdelot) (1610–85) noted in correspondence that he had to supply enough food and heat to make his guests comfortable at meetings (Brown 1967, 248–9).

win support from Catherine de' Medici for a similar neo-platonic initiative in France in the 1570s.

Pierre de Ronsard (1524–85) and Jean-Antoine de Baïf (1532–89) were prominent figures in an informal gathering of poets who met regularly at the Paris home of de Baïf's father, Lazare. This group of literary figures, who were known as the *Pléiade*, was subsequently transformed into the Academy of Poetry and Music, which was officially established by Charles IX in 1570 and continued to flourish during the reign of his successor, Henri III.[22] Its foundation, however, was not without controversy. The University of Paris opposed the king's decision to recognize an independent academy, and its objections to competition and to its exclusive control over higher education in Paris were ultimately overruled only by royal decree (Yates 1988, 26–7). The mention of music and poetry in the academy's title is misleading; while its members were particularly interested in setting poems to music, their understanding of the latter was so comprehensive that it included a revival of ancient Platonic and Pythagorean themes about the harmony of the universe, while their interest in moral philosophy extended to reviving Aristotle's analysis of the role of virtues in the life of individuals and the public life of the kingdom. The scope of their interests is confirmed by the work of their foremost philosophical theorist, Pontus de Tyard (1521–1605), who later became bishop of Chalon-sur-Saône in 1578.

Tyard's writings articulate the philosophical assumptions that the academy's members shared, to the effect that good music and poetry help to harmonize human souls and to restore them to a condition comparable to angels, from which they had fallen in their earthly embodiment. Tyard reminded readers that the 'Platonic philosophers hold that when the Soul descends into the body and is distributed into distinct operations it loses the . . . unity by which it knows and enjoys the sovereign One, which is God' (1575, 11). Since the soul descends through four stages, it is capable of recovering its unity with the One only by ascending through four steps: angelic understanding, intellectual reason, opinion, and the fourth or lowest stage, which Tyard calls 'nature . . . the animal power that consists in the functions of nourishment and generation' (1575, 12–13). Despite its obvious debts to Ficino, the academy was equally open to recovering the theory of virtues that Aquinas adapted from Aristotle's *Nicomachean Ethics*. Mersenne acknowledged, five decades later, that the academy contributed to the moral improvement of young people and that it included experts in languages, music, poetry, geography, mathematics, and even military arts (1623, cols. 1683–4, 1687).

Royal support for French academies lapsed during the reign of Henri IV, but the academies began to flourish again in subsequent decades, and realized a prominent place in the public life of the kingdom under Louis XIV. The academy of Nicolas-Claude Fabri de Peiresc (1580–1637) in Aix was among the first to foster experimentation in natural philosophy, and it provided Pierre Gassendi* with his initial laboratory

[22] The letters patent and statutes of the academy are published in Appendix I of Yates (1988, 319–22).

for astronomical observations, anatomical dissections, and mathematical research. Gassendi subsequently acknowledged his patronage by publishing a life of Peiresc (Gassendi, 1641). Peiresc communicated not only with many foreign natural philosophers but also with the new *cabinet* that had been established in Paris under the supervision of the Dupuy brothers. Pierre Dupuy (1582–1651) and his brother Jacques (1591–1656) founded one of the first scientific academies at *l'hôtel de Thou* in Paris, which later moved to the royal library when they were appointed librarians there. Marie de Gournay* provided a venue for similar meetings of Parisian friends of literature that may have helped inspire the foundation of the *Académie française*.

Marin Mersenne* moved to Paris in 1612 and soon afterwards conceived the idea of founding an academy that would mirror the inclusiveness of the defunct Academy of Music and Poetry. He outlined his ambitious project in the Preface to his commentary on Genesis, but his hopes were dashed. Nonetheless, the Minim friar acted as a clearing house in Paris for correspondence with many savants in France and internationally, as is testified by his very extensive correspondence (1932–91), and he also provided a venue for meetings of local and visiting intellectuals.

Théophraste Renaudot (1586–1653) had been trained in medicine in Montpellier and, when he came to Paris and enjoyed the patronage of Richelieu, he offered free clinics to the poor, founded a weekly newspaper, *La Gazette,* in 1631, and provided an alternative venue for weekly conferences at the *Bureau d'Adresse* between 1633 and 1642. The death of Richelieu in 1642 deprived Renaudot of his principal patron and, in his absence, the opposition of Guy Patin (1602–72), dean of the faculty of medicine in Paris, helped close this conference assembly.

Henri Louis Habert de Montmor (1600–79), a member of the *Académie française*, was another patron who offered a venue at his house in Paris for weekly conferences, in which he also provided, from 1653, temporary lodging for Gassendi. At Montmor's invitation, Sorbière drew up articles of association for the conference, which he shared with Hobbes in a letter of 1 February 1658. These included the following:

> Article 1. The objective of the conferences shall not be the vain exercise of the mind on useless subtleties, but . . . a clearer knowledge of the works of God and the improvement of the conveniences of life, in the Arts and Sciences which help to establish them better . . .
> Article VII: The Assembly will request those who may have an opportunity to do so to maintain correspondence with the scholars of France and of foreign countries . . .
> Article IX: No one other than members of the Assembly shall be admitted into the venue for the conference, which shall be composed entirely of people who are curious about natural things, medicine, mathematics, the liberal arts, and mechanics . . . (Sorbière 1660, 633).

Montmor's academy admitted many of the leading intellectuals in Paris and it continued to function in his house until 1664, when it transferred to that of Melchisédec Thévenot (1620–92). Although not exclusively dedicated to experimental work, Montmor's amateur conferences made explicit the urgent need for more spacious accommodation, especially for the long telescopes required for astronomical observations,

as one of the most urgent needs of a professional academy. Huygens reported in 1664, as he left Paris to return to Holland, that 'the Montmor Academy has closed permanently', although he assumed that 'another may arise from the wreckage of this one' (Huygens V, 70). Adrien Azout (1622–91), one of the first members of the *Académie royale des sciences*, raised this issue in a letter of dedication to Louis XIV in his *Ephemeris of the 1664 Comet*:

> If I had had a more suitable place and the large instruments that are required to make very precise observations, I would have made some such observations and I have no doubt that they would have helped me to succeed better than I have done. But Sire, it is unfortunate that there is not one such in Paris nor, as far as I know, anywhere in your whole kingdom with which I would be confident to measure exactly the height of the pole, as a result of which it is perhaps true that there is no other kingdom in Europe of which the geographical maps are so defective and the location of places is so uncertain.[23]

Azout went on to suggest that the 'glory of your majesty and the reputation of France' would be enhanced if the required instruments were made available to the learned and if the king provided an appropriate building where all kinds of celestial observations could be made. That was one of the principal objectives of a proposed 'Company for the Sciences and the Arts' (*Compagnie des Sciences et des Arts*), for the foundation of which nothing more than royal approval was required, so that it could work effectively towards the perfection of all the sciences and the useful arts.

The number and variety of literary and scientific conferences in France in the seventeenth century—both in Paris and in the provinces—was such that even to mention all of them would require extensive discussion. Henri Justel (1620–93) was particularly effective in corresponding with Henry Oldenburg, as secretary of the Royal Society, and with Oldenburg's successors in that office. Justel's associates included the Cartesian medical experimenter, Jean-Baptiste Denis (1643–1704), who performed a number of blood transfusions from animals to human beings before one of his patients died and the practice was suspended until the twentieth century (Brown, 1948). The growing interest in Cartesian philosophy also made it possible for Jacques Rohault (1618–72) to offer famous Wednesday conferences in Paris, while one of his protegés, Pierre-Sylvain Régis (1631–1707) extended the dissemination of Cartesian natural philosophy to conferences in Toulouse. There were also academies in Blois, Saumur, and Montpellier; in Caen, Pierre-Daniel Huet (1630–1721), bishop of Avranches, founded an academy that seems to have functioned actively until 1672. Finally, Pierre Michon (Abbé Bourdelot) (1610–85) established another venue for dissections, experiments, and philosophical conversation, which continued to function beyond the founding of the *Académie royale des sciences*.

The proliferation of academies in this period in France did not require a significant increase in the total number of potential members. Many of the same people attended

[23] Azout (1665), p. 2 of unpaginated *Epistre*.

different academies, depending on their interests and, presumably, on whether they were resident in Paris or visiting on different occasions. They included Pierre Petit (1594/8–1677), a mathematician and specialist in military fortifications, who was associated with the Mersenne circle and with Étienne Pascal (1588–1651), and many of those who subsequently were appointed members of the *Académie royale des sciences*.[24] They also included many of those who feature in later pages of this history, such as Cureau de La Chambre, Descartes, and Blaise Pascal.

The informal academies of seventeenth-century France were characterized by a number of common features (Hahn 1971, 3), one of which was a communal spirit of sharing ideas and information with their members. They also aimed to make their discoveries available to others, both nationally and internationally. For that reason, they usually had a recording secretary and even a corresponding secretary, and the less informal groups published what were equivalent to proceedings, which could then be shared with similar academies or interested parties abroad, such as the Royal Society in London. Finally, although they were not immune from sterile discussions or the exploitation of their meetings by misguided enthusiasts, and although their meetings were marred on occasion by academic controversy—such as Roberval's dispute in December 1658 with Montmor at the latter's academy—they acknowledged the special role of experiments and demonstrations for advancing an understanding of nature. Their common objectives were facilitated by the publication of a new weekly periodical, the *Journal des Sçavans*, the first number of which appeared in January 1665. The *Journal* included book reviews, reports about inventions and experiments, and critical notices about a wide range of issues. The twin objectives of publishing and fostering international links encouraged the editors of the *Journal* to share copies with the editors of the *Philosophical Transactions* in London and to publish translations of English reports in the Parisian periodical. Unfortunately, the *Journal* encountered serious opposition from the Faculty of Medicine in Paris and, more seriously, from the Jesuits because of its apparent Gallican sympathies, and its publication was suspended after three months. With the appointment of a new clerical editor, Jean Gallois (1632–1707), it continued to publish less frequently and more circumspectly for a number of years, until its publication was interrupted again in 1674.

The social and cultural conditions that supported the spontaneous emergence of so many independent academies and conferences also brought to light some of their inherent weaknesses. These academies depended so much on the voluntary efforts of their founders or patrons that they often collapsed with the death or departure from Paris of their conveners. Their precarious status was further underlined by the need for significant funds to acquire the expensive instruments and accommodation required for some experiments. Sorbière made this explicit when reflecting, in 1663, on the activities of the Montmor circle.

[24] Nicolas-François Blondel (1618–86), Claude Bourdelain (1621–9), Pierre de Carcavi (1603–84), Jean-Baptiste Du Hamel (1623–1706), Marin Cureau de la Chambre (1596–1669), Edme Mariotte (1620–84), Jean Pecquet (1622–74), Claude Perrault (1613–88), and Gilles Personne de Roberval (1602–75).

> It is impossible to build an arsenal of machines to carry out all sorts of experiments . . . Think of the space needed for observation of the stars, and of the size of the apparatus required for a forty-foot telescope . . . Truly, gentlemen, only kings and wealthy sovereigns or a few wise and rich republics can undertake to erect a physical academy where there would be constant experimentation. (Hahn 1971, 8)

The realization by these amateurs that they needed to become professional coincided with the imperial ambitions of Louis XIV and his evident desire to consolidate, not only the governance of his kingdom, but the visible expressions of its culture and scientific developments. He was therefore open to the suggestion that there should be a royal national academy of science, that it should be based in Paris, and that his first minister, Colbert, should initiate its foundation.

When Colbert embarked on this project, which he completed in 1666, he had to choose between at least two models of an institution that would centralize the advancement of learning in Paris and thereby reflect the glory of Louis XIV while supporting the political and military ambitions of the kingdom. The king's patronage was symbolized by arranging the academy's first meeting in his private library, and by striking a medal bearing the king's effigy to commemorate the occasion. One model for the proposed academy favoured a Baconian ideal of experimental research, with primarily a utilitarian objective to exploit and control the natural environment. This was championed by a number of those who were initially appointed, including the Dutch physicist Christiaan Huygens (1629–95). Huygens listed the kinds of members that he favoured, including those who were expert in geometry, mechanics, optics, astonomy, medicine, chemistry, anatomy, etc., and he set out the objectives of the proposed academy as follows: 'The plan of the Company is to work towards perfecting the sciences and arts and, in general, to research everything that may be useful . . . for the human race' (Huygens IV, 325). To achieve their objectives the members would have to 'perform experiments and discover as many novelties as possible both in the heavens and on earth from astronomical and geographical observations, using large telescopes, microscopes, and all other necessary instruments' (ibid.). Huygens was equally clear about what should be excluded:

> The meetings will never include discussion of the mysteries of religion or affairs of state; and if on some occasions they mention metaphysics, morals, history or grammar, etc., they will do so only in passing and insofar as it is related to physics or to social co-operation. (Huygens IV, 328)

In contrast with the model proposed by Huygens, Charles Perrault (1628–1703) proposed a more comprehensive general academy, which would include mathematical and physical sciences but would also be a centre for the development and protection of French culture in a wider sense, something akin to a royal republic of letters.

The Perrault model attracted objections from various interest groups, some of which had already been established by royal decrees, such as the *Académie française*,

which had specific responsibility for French language and grammar.[25] But there were also objections from the Sorbonne, from the Faculty of Medicine, and generally from universities, which were protective of their traditionally exclusive right to grant degrees in higher disciplines and to supervise college teaching. As a result, when the *Académie royale des sciences* held its first meeting in December 1666, it excluded many of those who were engaged in public controversies, such as Jesuits, Cartesians,[26] or Jansenists, and it established an independent body of experts who were distinct from and, in some obvious sense, superior to those who taught philosophy in colleges. The issue about a lack of adequate facilities was also addressed when the crown purchased land south of Paris and, using Perrault's design, completed the construction of a new observatory between 1667 and 1672.

The election of members to the newly established Royal Academy of Sciences highlighted the fact that women had been systematically excluded from all education in France, as in other countries. No woman was elected a member during the seventeenth century. Nonetheless, women were not excluded from other academies, and appear as participants in their conferences from the 1570s, when Madame de Retz and the King's sister, Marguerite de Valois, contributed to the Baïf academy. This pattern of allowing (usually noble) women to attend informal academies was complemented, during the seventeenth century, by the proliferation of *salons* of which women were often the conveners and in which they could exchange views about literature, culture, and the ideals of an *honnête* life in polite society.

Since women lacked the education that would have enabled them to engage in the academic disputes that characterized scholastic learning, their participation in academies became the subject of dramatic satire in the work of Molière—in plays such as *Les Précieuses Ridicules* (The Ridiculous Affected Ladies) in 1659, and *Les Femmes Savantes* (Learned Women) in 1672. The ignorance of young women was also satirized in a libertine dialogue that was published anonymously in Paris in 1655, under the title *L'Escole des Filles ou la Philosophie des Dames* [The School for Girls, or the Philosophy of Ladies],[27] in which two cousins engage in erotic discussions that reduce their educational interests to information about what husbands expect of newly married young women.

1.7 Conclusion

Philosophical essays were published in France, in the early modern period, in response to the wide range of political, religious, and scientific events and controversies that

[25] There were many other academies in France with specific responsibilities, such as the Academy of Painting and Sculpture (1648), the Academy of Dance (1661), the Academy of Inscriptions and Literature (1663), and the Academy of Music (1669).

[26] Nicolas Malebranche (1638–1715), who was a member of the Oratory and a prominent Cartesian, was elected to membership.

[27] It was translated into English in 1680 with the more informative title, *The School of Venus, or the Ladies Delight*.

attracted the attention of their authors. Those who were officially employed in colleges as professors of philosophy (in the wide sense in which that term was used then) introduced students to what were predominantly commentaries on Aristotelian philosophy, which the students read in Latin. In keeping with a tradition that stretched back over centuries, the professors of this period wrote and published new commentaries that incorporated recent discoveries in natural philosophy, but still within the conceptual limitations of their ancient authorities.

This pedagogical tradition was reinforced by Christian theology that, since the Patristic period, had borrowed the philosophical categories and analytical tools of ancient Greek and Roman authors to such an extent that its practitioners in the sixteenth and seventeenth centuries found it impossible to express essential Christian beliefs without using the pagan conceptual resources that it had adopted. This dependence on ancient philosophy applied equally to those who approved the decrees of the Council of Trent and to those, such as Philipp Melanchthon, who developed a systematic theology of the Reformation. Christian theology had become so intertwined with (especially) Greek philosophy that any challenges to the latter had immediate implications for the former, and those who were officially responsible for protecting the orthodoxy of religious doctrines among Catholics or Calvinists assumed the collateral duty of defending the philosophical assumptions on which the familiar expression of those doctrines relied.

The French religious wars of the sixteenth century and the political instability of the early decades of the seventeenth century, which culminated in the Fronde and the absolute sovereignty claimed by Louis XIV, made the crown extremely sensitive to publications that were understood as subversive of royal authority or as fostering civil unrest or open war between members of competing Christian churches. The combined result of these disparate factors was that authors of philosophical essays had to consider the various ways in which civil, ecclesiastical, or university authorities might understand their work as dangerous or unorthodox and might react defensively, possibly with fatal consequences. This did not mean that philosophers of the period wrote explicitly with mental reservations, or that they usually distinguished between exoteric doctrines that they were willing to publish and esoteric versions that were reserved for sympathetic readers.[28] It did mean, however, that no author in early modern France wrote a philosophy book—as one might do today—and then simply sent it to a publisher for production and distribution.

Any book or pamphlet from that period that is worth reading today was written and printed with full awareness of its political and religious implications and of the sensitivities of various civil or ecclesiastical authorities that might object to its contents. Official methods of censorship, however, were generally ineffective and therefore

[28] Toland (1720) developed this distinction to explain how one should often interpret authors as concealing unorthodox features of their doctrines.

failed to prevent publication, not only of unorthodox religious or philosophical views, but even of libertine pamphlets and openly seditious manifestos. That rich printed deposit is the site in which one discovers the arguments and opinions that were articulated, mostly by lawyers, in the many controversies that characterized French philosophy in the early modern period.

2

Scepticism and the Possibility of Knowledge

'The plague on human beings is the belief that they can acquire knowledge.'[1]

2.1 Introduction

Scepticism emerged as a significant, ubiquitous challenge to all forms of philosophical reflection in sixteenth-century France and, in the seventeenth century, it facilitated the development of a new theory of knowledge that accommodated the observational and experimental techniques that were characteristic of the new natural philosophy. Many sceptical arguments were borrowed from ancient texts and were recycled constantly by contemporary authors, who deployed them especially against two specific targets: the allegedly dogmatic teaching of scholastic philosophy, and the religious and moral beliefs of putative authorities. The spirit of scepticism infected beliefs at every level—from simple reports of perceptual experiences to the logical rules on which the validity of reasoning depends. The defensive response was equally comprehensive. It involved a re-examination of the role of the senses in acquiring knowledge, an analysis of human cognitive capacities, and eventually a radically revised understanding of different types of knowledge and their varying degrees of certainty that replaced the scholastic definition of knowledge within which sceptical objections acquired their initial plausibility.

Cicero's *Academica* was one of the more accessible sources of ancient scepticism, since it was written in Latin, the language in which European colleges and universities educated their students. Several editions of the *Academica* were published in Paris between 1535 and 1561. Together with other works by Cicero, it discussed examples of deceptive sensations, including the familiar case of an oar that is apparently bent in water (1933, 493, 567), although it was clear to both authors and readers that such oars are not bent. It was precisely because they knew they were not bent that those who mentioned them concluded that our visual senses are often deceptive. The *Academica*

[1] Montaigne, *Essais* (1873, 77).

also reminded readers of the veridical appearance of dream experiences (1933, 533),[2] it outlined the need for a criterion of truth (*judicium veritatis*: 1933, 440) by which true and false beliefs may be distinguished, and it explained how a regress is generated by all attempts to justify any such criterion. The regress argument assumed that it is impossible to know something that is not true, or that the truth of a belief is (by definition) a necessary condition for knowing it.[3] Evidently, beliefs may be true without the believer knowing that they are true. Scepticism arises, therefore, at a meta-level, when one considers the reasonableness of assenting to a belief or proposition without having a reliable criterion by which to decide its truth-value. Cicero concluded that, since 'to assent to anything that is either false or unknown is so serious a fault, preferably all assent is to be withheld' (1933, 553).

The writings of Sextus Empiricus were the second major source of the sceptical arguments that proliferated in France in this period. Although extracts from these Greek texts had been available in manuscript form prior to the sixteenth century, the first printed Latin translation of Sextus Empiricus's *Hypotyposes* (*Outlines of Scepticism*) by Henri Estienne was published in Paris in 1562. This reappeared in 1569, together with a Latin translation of the same author's *Against the Logicians* by Gentien Hervet.[4] Finally, although Diogenes Laertius was an unreliable reporter of the views of those whose 'lives' he wrote, his *Life of Pyrrho* in the *Lives of Eminent Philosophers*—which was also included in Estienne's Latin translation (1562)—emphasized the regress involved in justifying any criterion that is used to determine the truth-value of a given proposition: 'the criterion . . . will have to be determined by another, that other by another, and so on *ad infinitum*' (Diogenes Laertius 1925, 507). These Latin translations inaugurated a resilient strain of philosophical scepticism about human knowledge that provided a treasury of arguments against what critics characterized as various forms of dogmatism; they were also exploited both for and against the reliability of religious faith.

The application of sceptical arguments to religious beliefs was not a new development in the sixteenth century; nor was it novel to deploy such arguments in opposite directions, to defend or criticize religious beliefs. Cicero's *Academica* had been used by many Fathers of the Church, whose writings were widely consulted as theological authorities in France (Schmitt, 1972). Among the Church Fathers, however, while some used academic scepticism to defend the certainty of religious faith, others acknowledged its capacity to undermine religious belief. Lactantius exemplified the former response in the third century, when he argued in the *Divine Institutes* that philosophy was not a scientific discipline, since the opinions of philosophers were nothing

[2] The argument is much older, and is found for example in Plato, *Theaetetus* 158b5–10.

[3] Augustine wrote in *Against the Academics*: 'we are agreed, as are all the ancients and even the Academics themselves, that no one can know what is not true' (1951, 109).

[4] The dissemination of manuscript and printed translations of texts by Sextus Empiricus is comprehensively summarized in Floridi (2002), and is outlined in Popkin (2003, 17–38).

more than conjectures.[5] When they claim to know the truth about natural phenomena, therefore, 'they do not know the truth about them, because knowing entails certainty and opinion uncertainty' (2003, 171). Lactantius endorsed a widely accepted comparison of the relative certainty of religious beliefs with the uncertainty of philosophical opinions: that God's revelation as found in Scripture is certain, while the inconsistent opinions of philosophers are necessarily uncertain. Hervet shared the same opinion in 1569: since 'no human discipline has been constructed with such rigor that it cannot be shaken', Christians should put their trust in revelation to acquire a 'science that is above all others'. According to Hervet, a sound theological science based on faith would provide 'a multitude of arguments against the heretics of our time' and might even 'persuade Calvinists to return to the simple word of God'.[6]

In contrast with this defence of the relative certainty of religious belief, Saint Augustine concluded that if sceptical arguments were successful, they would also generate collateral uncertainty about religious faith. He summarized the sources of philosophical scepticism in *Against the Academics* as 'the want of accord among philosophers, the errors of the senses, dreams and delirium, sophisms and fallacies' (1951, 77). He was not convinced, however, by the sceptics' reasoning. He wished to hold fast to 'the authority of Christ', which he wanted to protect against objections from subtle philosophical reasoning (including that of the sceptics). For Augustine, therefore, a sound philosophy would support faith rather than undermine it, and he found among 'the Platonists' a philosophical system that he believed would not be 'at variance with our sacred mysteries' (1951, 150).

The various forms of scepticism that were inherited from ancient sources did not provide a uniform evaluation of all knowledge claims. Since denying the truth of a proposition may imply knowing (or at least having a reason to believe) that it is false, sceptics tended to assume an attitude of merely doubting knowledge-claims. That did not logically exclude doubting some propositions more than others. A sceptic might therefore hold that some specific types of belief are doubtful, or that all beliefs are uncertain. Even universal doubt allowed sceptics to *believe* many things, once they stopped short of claiming to *know* them; they could even claim to have stronger evidence for one belief rather than another and then endorse the former without claiming to know it.

Despite the frequency with which the same sceptical arguments were repeated, however, there was relatively little analysis of the concepts on which those arguments hinged, such as 'truth', 'knowledge', and 'certainty', although both proponents and opponents began to address those issues in the early seventeenth century. In the examination of various French sceptics, therefore, it may be helpful to look beyond their

[5] Lactantius devoted the whole of Book 3 of the *Divine Institutes* (2003, 168–224) to arguing that philosophy, as a search for wisdom, acknowledged that it had not yet achieved its objective and that the multiplicity of sects or schools confirmed that conclusion.

[6] I quote Hervet's Dedicatory Letter (1569) from the collection of primary sources in Popkin and Maia Neto (2007, 90).

repetition of arguments culled from the ancients and inquire about: (i) the concept of knowledge by reference to which they concluded that some (or all) beliefs are doubtful; (ii) the degree and possible sources of certainty that they required in order to *know* something; (iii) the theory of truth (if any) that they assumed; and (iv) the conclusion they inferred from reasonable doubt—for example, that all propositions and their negation are equally doubtful, or that propositions may be subject to varying degrees of doubt that would make it rational to choose less doubtful beliefs. By asking these questions, natural philosophers of the seventeenth century succeeded in developing a novel concept of knowledge that avoided the definitional limitations of Aristotle's *Posterior Analytics* and reflected the success and epistemic status of the experimental methods that characterized the Scientific Revolution.

2.2 Montaigne, Charron, and French Pyrrhonism

Michel de Montaigne published the first edition of the *Essays* in 1580 and continued to revise and expand them until his death in 1592. In the longest essay, the 'Apology for Raymond Sebond', he explored the limits of human understanding and the extent to which religious faith may compensate for those limits by providing secure beliefs about God and morality. Montaigne's interest in Sebond began when, at his father's request, he translated Sebond's *Natural Theology* into French in 1569. Since Sebond appeared to suggest that unaided human reason could discover everything revealed in Scripture and all the truths that are necessary for salvation—a position that many Christians considered to be theologically unorthodox, since it denied the necessity of revelation—his translator embarked on a lengthy investigation of the limits of human knowledge and the complementary necessity of faith. In doing so, he exploited the arguments of ancient sceptics and introduced them to a new and wider readership in Europe.

Montaigne's style does not lend itself to easy summary. Nonetheless, his extensive review of sceptical arguments and, in contrast, his deference towards the cognitive value of religious faith are best understood as implying the following: that (i) our natural cognitive faculties are unreliable, and (ii) religious faith provides access to religious truths with greater certainty than is achieved in natural knowledge.

The conclusion that readers of the *Essays* are encouraged to adopt is suggested by frequent references to Socrates, such as: 'the wisest man that ever was, when asked what he knew, replied that the one thing he did know was that he knew nothing' (1991, 558). Montaigne was careful not to claim to know even that he knew nothing; but, without saying so, he hinted strongly that it is best not to claim to know anything. 'The plague on human beings is the belief that they can acquire knowledge' (*Essais* 1873, 77) which was reflected in his famous question: *Que sais-je?* [What do I know?]. Accordingly, he could quote Cicero with apparent endorsement—that 'nothing can be known' (1991, 580)—while reporting favourably that Pyrrhonians give their assent

to nothing. He claimed that this leads to what he described as the benefits of the Pyrrhonians' 'well-known *ataraxia* . . . a calm, stable rule of life, free from all the disturbances' that give rise to fear, envy, pride, rebellion, etc. (1991, 560–1). The implied conclusion about the limitations of our cognitive faculties was supported by a number of considerations.

One reason for doubting was the sheer multiplicity of inconsistent opinions that people hold about most things. That in itself would not imply that people are incapable of discovering the truth, or that their cognitive faculties are inherently deficient. Such a variety of disparate views could be explained as easily by the misuse of what are otherwise reliable means of knowing. Montaigne therefore focused attention on people who were endowed with the best minds and were less likely to misuse their powers of knowing: 'Let us consider only that tiny number of outstanding, handpicked men who are born with a fine natural endowment and . . . who strengthen and sharpen it by skill and study' (1991, 559). Even among that select group, however, he quoted Cicero's observation that 'nothing can be so absurd that it has not already been said by one of the philosophers' (1991, 613). The argument, then, was that the failure of such great minds to agree on fundamental truths is best explained by postulating the natural weakness of their cognitive faculties: 'how else can we explain the obvious inconstancy, diversity and vanity of the opinions produced by such excellent . . . awesome minds?' (1991, 572).

Montaigne supplemented this explanatory inference from human disagreement by other arguments from the ancients. He accepted that 'knowledge is conveyed through the senses . . . [which] are the beginning and the end of human knowledge' (1991, 663). If the reports we receive from the senses fail, therefore, 'we have nothing left to hold on to' (1991, 667). It was easy to provide examples of cases where our sensory perceptions are unreliable, because they vary with the conditions in which we perceive (for example, we see objects as if they were coloured when they are illuminated by particular light sources) and with the condition of the organs of sensory perception (we see double if our eyes are squeezed in a certain way). Even the much-cited oar in water that is apparently bent confirms this (1991, 660). He supplemented the specific examples of sensory deception with the more general worry that, if the cognitive faculties on which we rely have often deceived us, we lack confidence to trust them subsequently. 'If my touchstone regularly proves unreliable and my scales wrong and out of true, why should I trust them this time, rather than all the others?' (1991, 634–5).

Montaigne also exploited the similarity between dreaming and waking experiences, which had been reported as a source of doubt by Cicero: 'why should we therefore not doubt whether our thinking and acting are but another dream; our waking, some other species of sleep?' (1991, 674). Finally, Montaigne used the familiar argument from Sextus Empiricus about the regress that results from any use of a criterion to distinguish between true and false beliefs. Having accepted that the senses are uncertain, one might assume that reason could identify true beliefs. 'But no reason can be established except by another reason. We retreat into infinity' (1991, 679). The conclusion to

which all these sceptical arguments led was that, without a reliable foundation for our beliefs, we should refrain from choosing between competing opinions:

> If our intellectual faculties and our senses have no foundation to stand on but only float about in the wind, then it is pointless to allow our judgement to be influenced by their operations, no matter what 'probabilities' it seems to present us with, and so the surest position for our intellect to adopt, and the happiest, would be the one where it could remain still, straight, inflexible, and without motion or disturbance. (1991, 633)

Even if one assumed that Montaigne did not affirm a thesis about our lack of knowledge and that he merely examined options available to readers of his essays, it is still surprising that he failed to ask what is meant by 'certainty', 'knowledge', or 'truth', and that he did not consider the possibility of redefining knowledge in a way that would avoid at least some sceptical objections. The reason for this omission seems to have been that, for Montaigne, sceptical arguments were merely a foil by contrast with which he could defer to religious faith, at least in those areas where faith claimed to provide true beliefs. The alleged folly of human wisdom provided a receptive opening for religious faith. Montaigne's comments on the function and epistemic status of religious faith are examined below in 3.4.

If Montaigne were consistent about Pyrrhonism, he could not be read as an author who wished to persuade readers of a particular thesis about knowledge or religious faith. The title of his voluminous reflections suggests 'attempts' (*essais*) at self-understanding, in which he mined the disparate treasures of ancient wisdom to achieve the kind of tranquility in living to which he aspired. Nonetheless, he was self-consciously criticizing dogmatism—that of his contemporaries, but also of Aristotle, whom he described as 'the Prince of the Dogmatists' (1991, 566)—and the implications of dogmatism for those who lived in France in conditions of intermittent civil and religious wars. Regrettably, he noted, 'Christians excel at hating enemies' and 'we burn people at the stake for saying that Truth must bow to our necessities: and, in France, how much worse is what we do than what we say!' (1991, 495). It may be possible, therefore, to understand the *Essays* as not claiming that we never know anything, or that religious faith is more certain than any belief we may hold about natural phenomena or historical events. Montaigne may have been simply withdrawing from all knowledge claims, and accepting as a guide to a contented life those beliefs that were most familiar and consoling to him without claiming that they were true. If so, he was exploiting Pyrrhonism without providing any new arguments to support its conclusions.

Pierre Charron* was another Catholic apologist whose prolix literary style reflected that of Montaigne, and whose work was even more popular than that of his mentor for a brief period in the early decades of the seventeenth century. He published a lengthy defence of the Catholic faith in *Three Truths* (1594). The three truths in question were that 'there is a religion that is admissible by all . . . against atheists and the irreligious'; that 'of all religions, Christianity is the best, against all miscreants, gentiles, Jews and Mahometans'; and that, among the various forms of Christianity, 'the Roman Catholic

form is the best, against all heretics and schismatics' (1635, 1, 67, 129). Thus, Charron was not at all doubtful about the orthodoxy or truth of his own religious beliefs.

The main thesis of Charron's *Wisdom*, which appeared seven years later, was consistent with his original apologetic objective. It does not advise readers to withhold their assent from what it calls the 'the external and everyday activities of one's life' because the author's guidelines for acquiring wisdom 'have nothing at all to do with what is external or what involves behaviour' (1986, 386–7). He was offering advice, instead, about psychological peace of mind—a kind of spiritual counselling that focused exclusively on his readers' mental health.[7] It was impossible, however, to offer any advice without endorsing some opinions as being at least more probable than others, and Charron explicitly accepted that implication: 'even in relation to this inner thinking and judging, I agree that one should assent to and hold firm to what is most probable, most honest, useful, and convenient' (1986, 387).

As in Montaigne's *Essays*, therefore, *Wisdom* was a Pyrrhonist argument in favour of religious faith. The Pyrrhonist phase was summarized in familiar terms:

> It is certain, according to all wise men, that we are ignorant of many more things than we know . . . the causes of our ignorance are infinite, because things are too distant from us or too near, too large or too small, too durable or not durable enough, and constantly changing; they are also infinite because of the subject who knows and the ways in which we know . . . what we think we know, we do not know . . . I arranged to have '*I do not know*' engraved over the door of the small house I built at Condom in 1600 . . . (1986, 401–2)

According to Charron, the admission of ignorance emptied the human mind of uncertain opinions and made room for faith. Once people qualify their beliefs as if they were 'Academics or Pyrrhonians, it is necessary to propose the principles of Christianity, which came down from heaven' (1986, 405). Charron was convinced that 'an Academic or Pyrrhonian would never be a heretic' and, if one objected that 'he would never be a Christian or a Catholic either' (1986, 405), Charron's reply was the familiar but unjustified claim that the truth of religious beliefs is guaranteed by divine revelation.

2.3 Empirical Knowledge: Sanches and Gassendi

Francisco Sanches* published an analysis of the possibility of knowledge, *That Nothing is Known*, one year later than Montaigne's *Essays*. Sanches was struck by the prolixity of the authors whom he read, their failure to advance our understanding of natural phenomena, their uncritical reliance on authorities—especially that of Aristotle—and by their inability to resolve many disputed questions, despite centuries of acrimonious disputes. His initial response to the dogmatic but inconsistent knowledge-claims of

[7] There was an extensive literature of this genre that was adapted to specific types of reader. For example, St Francis de Sales published his *Introduction to the Devout Life* in 1609. De Sales is discussed further in Chapter 6 below.

widely accepted authorities was to doubt them, and to search for some method of acquiring more reliable knowledge. In words that echoed fifty years later in Part I of Descartes's *Discourse on Method*, he wrote:

> Subsequently I withdrew into myself; I began to question everything and to examine the things[8] themselves as though no one had ever said anything about them, which is the proper method of acquiring knowledge. I broke everything down into its ultimate first principles. (1988, 167)

His starting position, then, was not that he knew that he knew nothing (for that itself would have been at least one item of knowledge); instead, he merely assumed that no one knows anything, although that assumption may also turn out to be false. 'I do not *know* even this one thing, namely that I know nothing. I conjecture (*conjicio*) however, that this is true both of myself and of others' (1988, 172).

There were two novel features in Sanches's response to the sixteenth-century sceptical tide to which he was exposed. One was the realization that any conjecture or claim about what is known presupposes some concept of what is meant by 'knowledge'; accordingly, he offered a new, non-aristotelian definition that helped to specify the meaning and scope of his own claims. Secondly, *That Nothing is Known* recognized the very significant role of language in making knowledge-claims. Montaigne had mentioned, in the course of his reflections on philosophical disputes, that 'most of the world's squabbles are occasioned by grammar' (1991, 590). Sanches endorsed that view, although in his case the comment was put to more constructive use. He distinguished between the language in which we make knowledge-claims and the realities about which we hold the opinions we express. Since the relation between words and things is purely conventional, he argued, it would be a fundamental mistake to substitute a discussion of our linguistic expressions for an examination of the realities to which they apply, as scholastic philosophers allegedly did: 'every definition, and almost every enquiry, is about words' (1988, 174). According to Sanches, this diversion of inquiry from things to words encouraged disputants to introduce philosophical terms that were poorly understood: everyone 'mutilates words as he pleases, and distorts their meaning in this way or that, adapting them to his own purpose' (1988, 176).

Sanches was a professor of philosophy for some years before his appointment to a chair in medicine.[9] He was particularly sensitive to the necessity of observation and experiment, and was aware of the danger of being trapped in a conceptual framework that failed to reflect adequately the complexity of the realities to which it was applied. He recognized that the words used in Greek, Latin, or any vernacular language were merely conventional signs and that there was no guarantee that the words represented the essence or nature of the corresponding realities. Nor could one show that the Greek

[8] I have substituted the word 'things' for 'facts' in this translation, since the Latin term was *res*.

[9] He was appointed professor of philosophy in Toulouse in 1585, and professor of medicine in 1612 following an earlier unsuccessful application.

or Latin languages are more fundamental for acquiring knowledge than other languages, as if the words mirrored the realities they denote. Sanches argued that, once this language-reality distinction is understood clearly, one sees the danger of abandoning the search for knowledge of reality and devoting all one's energy to philosophical terms that are almost meaningless (1988, 261–9). Sanches's conclusion, however, was not that it is impossible ever to utter a true proposition. He took it for granted that young children do exactly that in their vernacular, if they are asked 'Is your father home?' and (when he is at home) they reply: 'He is' (1988, 217). The philosophical problems to which he drew attention were the inadequacy and potentially misleading features of many theoretical terms—such as 'entelechy', 'essence', 'quiddity' or 'corporeity'—and the fact that the reports of authoritative authors (which are necessarily linguistic) are not a more appropriate place to seek knowledge than in the realities about which they reported.

Given the capacity of words to misrepresent or mislead, Sanches had to be very careful about what he meant by 'knowledge'. The target of his critique was especially Aristotle, whose definition of *scientia* in terms of syllogistic demonstrations from first principles he summarized and rejected. One reason for doing so was the familiar one that Aristotle could not explain how to demonstrate the first principles from which such demonstrations were logically derived. Sanches refocused attention on the mental activity by which knowledge is acquired—which, he assumed, lasts only as long as the activity that produces it—and contrasted it with various ways in which the results of that activity are stored in memory or in books. Only the former, he claimed, rather than memory is knowledge in a strict sense of the term. He then offered his own revised, hypothetical definition: 'Knowledge is a perfect understanding (*cognitio*) of a thing' (1988, 200). The inclusion of the qualifier 'perfect' makes it considerably easier to explain why we lack that kind of knowledge. 'There are three factors in knowledge: the thing that is to be known; understanding; and the perfection of knowledge' (1988, 203), and each of these provides room for slippage from the ideal.

In relation to things to be known, some of them are difficult to know because they are so vast, others because they are so minute, and others again because they are so far removed from us in the depths of the sea or in the distant heavens.[10] Since all knowledge of such things comes from sensation (*a sensu*), their relative inaccessibility to the senses implies that they cannot be known (1988, 222). Another limitation on knowing is that the senses receive impressions of only the outer appearance of things, but they do not understand. Thus the understanding is constrained by the limitations of the images received through the senses. Sanches mentions some of the familiar concerns about sensory perception, including the very familiar stick that is apparently bent in water (1998, 248), but he does not conclude that it is impossible to avoid being misled by misperceptions. His conclusion was that our understanding is *limited* by sensory perception, and by our inability to see directly into the essence of natural phenomena,

[10] Charron subsequently used similar arguments (2.2 above).

including such familiar phenomena as magnetism. Sanches also assumed that a perfect understanding of any single object or natural phenomenon is impossible without knowing many other things that are naturally related to it as its cause or effect: 'for one thing cannot be fully understood apart from all other things' (1998, 211). In fact, in order to understand any one thing 'it is necessary to understand other things as well, since even for the production, preservation, or destruction of the one, a combination of all the others is indispensable' (1998, 212).

In summary, the limitations of human knowledge result, according to Sanches, from our dependence on experience and judgement. Since 'experience is in every instance deceitful and difficult' and since judgement 'is applied to what is found out by experience', we can do no more than speculate about the inner structure of things from their external appearances. 'In respect to the natures of things, it [judgement] reveals them only by speculation' (1998, 278). There are clear hints in these reflections of developments that appeared explicitly and with striking effect in the seventeenth century. Sanches's thesis about knowledge might have collapsed into an analytic truth: if knowledge is defined as a *perfect* understanding of some particular natural object or phenomenon, the mere definition of terms implies that it is impossible to acquire it. But his discussion moved the argument away from the Pyrrhonist thesis that one should not assent to any proposition or its negation. Instead he exploited the sceptical discussions of his contemporaries to highlight the relativity of knowledge-claims to the conceptual framework in which they are expressed, and the need to examine the objects of knowledge as fully as possible rather than accept the opinions of ancient authorities. The concluding sentence of his book invited those who had acquired some knowledge to share it with the author, who promised to explain in another book, as far as human frailty allowed, a *method of knowing* (*methodus sciendi*). A true sceptic would not have assumed that it is possible to acquire knowledge, much less to outline a scientific method. Unfortunately, Sanches never wrote the other book that he promised.

Pierre Gassendi* had been a consistent critic of Aristotelian philosophy for many years prior to being invited by Mersenne, in 1641, to submit objections to a draft copy of Descartes's *Meditations*. One of his earliest publications, the *Paradoxical Exercises against the Aristotelians* (1624), confirmed the frustration with Aristotle that he had experienced for some years: 'I no longer cover up the errors, contradictions, tautologies and extraneous subjects that abound in Aristotle' (1972, 8). His fundamental thesis in *Paradoxical Exercises* was, like that of Sanches, that 'the intellect does not know anything in an Aristotelian fashion, nor does there exist any demonstration such as Aristotle describes it' (1972, 104). He was not objecting that it is impossible to acquire knowledge *tout court* but that it is impossible to acquire the kind of demonstrated knowledge that Aristotle defined.

Gassendi initially excluded from the scope of his sceptical comments beliefs based on religious faith, for two reasons: knowledge of God's existence or belief in the Trinity fell outside the scope of Aristotle's definition; and since that 'knowledge' was based on faith, it was even more certain than any other knowledge one might have (1972, 85–6).

But no less surprisingly, he excluded knowledge-claims based on empirical evidence, since it was not the 'certain and evident cognition of a thing, obtained through an acquaintance with its necessary cause, or by a proof'.

> Since it is certain that all our knowledge is in the senses or derived from them, it therefore seems equally certain that we cannot pass judgment on anything unless our senses bear some witness to it. Hence, as we have already seen, appeal must always be made to the senses as to the highest court and final proof… And so we conclude that the sun is luminous and rises daily in the East, that fire is hot and tends upwards, that water is cold and flows downhill, that honey is sweet and is concocted by the labor of bees… all this on the grounds that our experience shows us that these things are so by the testimony of the senses. (1972, 86–7)

Gassendi added two significant qualifications to this favourable assessment of perceptual knowledge: that it cannot be extrapolated to knowledge of substances, and that it is relative to the perceiver and therefore varies from one individual to another.

While one may know an attribute or even a collection of properties of something, that does not lead to knowledge of its substance. 'All we can know is this or that property of such a substance or nature if it is open to observation and becomes familiar by experience' (1972, 199). This objection to the scholastic theory of knowledge was developed, two decades later, in response to Descartes's draft of the *Meditations*, and in the more extensive version of those objections that appeared as the *Metaphysical Investigation*. Descartes, in the Second Meditation, had contrasted the variable properties of a piece of wax that are known by sensation with an underlying 'nature' that is known by the 'mind alone', and he illustrated the point by using an analogy between (a) a substance and its properties and (b) a man and his clothes. He compared examining a piece of wax that melted and vapourized with looking out the window and seeing fully clothed people passing by on the street. From a superficial inspection, in the latter case, of what appeared to be merely hats and coats in motion, he was entitled to conclude (he claimed) that there were real people underneath those appearances. In a similar way, Descartes wanted to know the underlying substance of wax, apart from its observable and variable properties—to know it, in other words, 'as if it were bare and without its clothes on' (VII 32: D 29). Gassendi, however, rejected the analogy and he outlined his own understanding of what a 'substance' is by talking about wine.

If one asked about wine and wanted to know more than was generally known about it in the seventeenth century, when French winemakers were well able to make good wine but had no understanding of the chemistry or microbiology of the processes by which it was produced, it would not represent any added knowledge if one said simply that 'wine is something liquid, which is compressed from grapes, is white or red, sweet, intoxicating, etc.' (VII 276).[11] To extend one's knowledge, one would have to examine and understand what Gassendi called the 'inner substance' of wine and would have to

[11] Here and in the following pages the Gassendi references that include only a volume and page number refer to the Adam and Tannery edition of Descartes's works.

describe how it could be composed of various small parts that combine to give the observable liquid with which most French peasants were already familiar. For similar reasons, it was completely uninformative for Descartes to announce in the *Meditations*, as if he had discovered something new, that he was a thinking thing, since that was something that every peasant knew. If Descartes wished to move beyond what was generally known, he would have to apply a kind of 'chemical analysis' to himself to detect the inner substance that explained his thinking.

Although Gassendi used the scholastic term '*substantia*' when asking about the inner parts and structures that determine the observable properties of wine, he did not share the assumptions that he claimed were implied by Descartes's analogy between the properties of a substance and the clothes of passing pedestrians. He argued that we know everything we know about any reality only by knowing its properties, and that it is a misleading conjecture to assume that there is an extra 'something' underneath them that remains to be discovered. It was a mistake, therefore, to think that the 'substance' of something can be revealed 'in the same way that a man can be revealed, when we have initially seen only his hat and clothes and then remove them to discover who he is, and what he is like' (VII 272).

The source of Gassendi's objection, therefore, was not that there are such things as substances that are unknown or unknowable, but that the concept of a substance is as vague as that of a 'thing'. Once we know the properties of things, there is no further 'unseen substance' beneath them, and the very concept of such a substance is confused and fictitious.[12]

Secondly, the perceptual knowledge available to human beings (and other animals) is relative to the perceiver, and it would be erroneous to attribute a perceived quality to an object of perception. Descartes had proposed as an epistemic rule that 'Everything that I perceive very clearly and distinctly is true'. Gassendi rejected that axiom, because equally clear and distinct perceptions may vary from one perceiver to another.

> I perceive clearly and distinctly the pleasant taste of a melon, and it is therefore true that the taste of a melon appears like that to me. But how will I convince myself that it is therefore true that such a taste is in the melon because, when I was a boy and in good health, I judged differently that I was perceiving clearly and distinctly a different taste in the melon? (1658: III, 314b)

As he reminded Descartes, the arguments of the sceptics undermine a simple inference from perceived qualities to objective features of what is perceived. Gassendi might seem to have concluded (invalidly) that one cannot move beyond the kind of perceptual knowledge that is provided by the senses. But that is probably a misreading of what he meant. If one accepted his advice to avoid projecting perceptual qualities onto the objects of perception, it may still be possible to explain—hypothetically—why perceptions

[12] Gassendi later used the same example of wine-making in the *Syntagma* to illustrate the point that 'many other sciences, so many sensations and so many experiments' (1658: III, 311b) would be required to extend one's knowledge of the inner nature of wine beyond what was generally and superficially known about it.

vary from one subject to another, and what kind of objective features of both the perceiver and the object of perception account for variable perceptual experiences. His discussion of the substance of wine certainly gives the impression that it is legitimate to speculate about the unobservable properties of the particles that compose wine by first noticing its observable properties.

Gassendi's two primary contributions to this debate, then, were a critique of the Aristotelian concept of knowledge—as a deduction of properties from knowledge of their underlying substance—and the substitution in its place of an ideal of empirical knowledge that is merely probable but, nonetheless, satisfactory.

2.4 Scepticism and Libertinism

François de La Mothe le Vayer* was a typical representative of those who exploited the resources of scepticism to support their libertine beliefs. He published his initial essays in 1630 and 1631 under the title: *Dialogues conducted in imitation of the Ancients*; but he did so by using a false name, date, and place of publication on the title page. This fact alone gives one pause when reading what he published subsequently under his own name—whether he actually held those views or merely published them to stimulate controversy.

La Mothe le Vayer assumed, as other Pyrrhonists did, that the mere diversity of opinions was sufficient to show that none of them was reliable. In his *Small Sceptical Treatise on the commonly used phrase 'To Lack Common Sense'*, he reclassified what was commonly believed as more likely to have been false: 'there are hardly any opinions that are more certainly false than those that are more universally accepted' (1646, 23). These included opinions in ethics, natural philosophy, medicine, and even logic. 'All logic is based on the principle . . . that two contradictory propositions cannot be true at the same time' (1646, 72) but, since Democritus allegedly held the opposite view, Le Mothe le Vayer concluded that that principle may also be false. But without such a principle it was impossible for him to conclude, from inconsistent opinions, that at least one of them must be false. Even Pyrrhonists needed some elementary logic.

Not surprisingly, in order to support his sceptical stance La Mothe le Vayer also focused on the natural unreliability of the senses and their critical role as a means of access to the external world:

> Since we cannot know anything except by means of the senses, which are said to be the gates of our soul, into which nothing enters except through them, should we not be very suspicious of all our knowledge, given the natural weakness of these very senses, their usual defects and their errors which are so frequently apparent? (1646, 114–15)

All these arguments were already familiar to his readers in France. He did raise the issue of what is meant by 'truth', although the options he offered were less than promising. He wondered if truth is something in things or in the understanding; if it is 'real' or is merely a relation or conformity between a thing and the human intellect; if it is visible

or knowable, or completely hidden; if truth may vary more and less or if, according to Aquinas, it is absolute; in a word, if we have a criterion of truth or merely probable opinions (1646, 106–7). None of these options addresses satisfactorily one of the basic assumptions on which the sceptical challenge rested. La Mothe le Vayer summarized the familiar Pyrrhonist thesis, in his dialogue about being opinionated, that 'it is best that we use the wonderful suspension of our dear sceptic' (1988, 384–5) rather than commit ourselves to any specific view. But he also claimed that there was one exception to that rule—in the case of religious belief.

One of the participants in the *Dialogue concerning the Divinity*, Orentes, raised the plausible Augustinian objection that the sceptic's uncertainty about all opinions may be applied equally to Christianity, and that scepticism might therefore undermine the assumed certainty of religious belief. Orasius answered by distinguishing between (i) a science based on first principles that are accessible to reason, and (ii) religious faith, which is based only on God's authority. If a religion were understood as a science, he argued, it would be no more certain than an astronomical hypothesis: 'a religion, if understood in that way, is nothing more than a particular system for providing an explanation of moral phenomena' (1988, 331). But, if religion were understood in that way, there would also be infinitely many religions and, among those who believed in them, there would be 'no one who does not believe that theirs is the true religion and who condemns all others' (1988, 331). La Mothe le Vayer opted for the paradoxical solution that one should 'profess the honourable ignorance of our beloved sceptic' because that alone can prepare the soul to be receptive to 'the knowledge that is revealed by God' (1988, 351). As in Montaigne and Charron, sceptical ignorance was assumed to prepare the soul for revealed truth, and religious belief was said to avoid the sceptic's objections because it is not merely another type of fallible human knowledge. But, as in the case of Montaigne and Charron, La Mothe le Vayer provided no justification for the alleged certainty of religious belief.

2.5 Arguments against Scepticism

Marin Mersenne spent most of his adult life in the friary of Saint Francis of Paula, Paris, from which he conducted an apologetic campaign on behalf of the Catholic Church and corresponded with many of the leading scholars of his time. Mersenne published a number of very lengthy books in quick succession in the 1620s, including *Famous Questions about Genesis* (1623), *The Impiety of Deists, and the most subtle Libertines exposed and refuted by Theological and Philosophical Arguments* (1624), and *The Truth of the Sciences, against Sceptics or Pyrrhonians* (1625).

The Truth of the Sciences was designed specifically to counter the arguments of Pyrrhonists, many of which were borrowed from Sextus Empiricus. It was written as a dialogue between an alchemist, a Pyrrhonist, and a Christian philosopher, in which

the philosopher attempts to find some middle ground between the extravagant claims of the alchemist and the denial of all knowledge by the Pyrrhonist. The philosopher questions the degree of perfection required before an opinion may be classified as 'knowledge'. He argues that 'in order to know something, for example that it is made of paper' one need not know everything about it, as Sanches had argued. Although such a comprehensive understanding is a feature of divine knowledge, in the case of human beings 'to have a science of something it is enough to know its effects, its operations, and its usage, by which we distinguish it from other things' (1625, 14–15). According to Mersenne, that is also sufficient to guide our actions in our daily lives, and nothing more is required.

Once he had introduced the possibility of various kinds of knowledge that achieve different degrees of certainty, Mersenne had found a reply to Pyrrhonism, to which he became more explictly committed in the 1630s and 1640s. Its essential features were to accept probable opinions as adequate in some contexts or disciplines, to distance himself from the Aristotelian ideal of knowing the essences of things, to acknowledge the certainty of many opinions that are universally accepted—for example, that an elephant is larger than an insect—and to claim that one can be certain of some theoretical principles, such as those found in metaphysics, mathematics, and logic. The status of revealed truths, which are known from Scripture, was also privileged and was protected by the authoritative teaching of the church to which Mersenne belonged.

The idea that many opinions are merely probable was familiar in the humanist culture in which this Minim friar had been educated (Dear 1988, 23–47). Mersenne was also well informed about the initial condemnation of Galileo in 1616 (Blackwell, 1991), and quoted relevant sections of the decree of the Congregation of the Index (5 March 1616).[13] While the fundamental dispute between Galileo and the Congregation concerned the compatibility or otherwise of heliocentrism with the Church's interpretation of various biblical texts, the disputing parties also disagreed about two interrelated questions on which the resolution of the basic dispute depended: (i) whether astronomy aims to provide a physical description and explanation of apparent planetary motions, or merely offers a mathematical model for calculating the apparent motions and positions of the planets; and (ii) whether Aristotle's account of demonstration was the relevant criterion for choosing between alternative hypotheses, or whether some other criterion (such as confirmation by observations) would be sufficient to endorse one theory rather than another (McMullin, 2005). When Mersenne discussed the solidity or otherwise of the heavens in 1623, in *The Use of Reason*, he seemed to accept, in answer to (ii), that probability is sufficient to choose between alternative astronomical hypotheses. Human understanding 'must have some probable reason to judge that something is false or true' and he concluded that it would be impossible to believe that the heavens are solid without 'a reason for that conclusion, however slight its probability' (2002, 70).

[13] An English translation is available in Blackwell (1991, 122).

When Mersenne considered this issue in his commentary on the Book of Genesis in the same year, he formulated Question VI as follows: 'Is the firmament solid or not' and, within that question, he presented arguments in Article VIII to undermine 'the reasons that seem to imply the solid and hard nature of the heavens' (1623, 839–40). He explained in Article IX that the appropriate way to resolve the obscurity of this issue was by choosing the view that is 'more probable' (1623, 841). His first conclusion, then, was that 'all the heavens in which the stars seem (*videntur*) to move seem (*videtur*), not improbably, to be fluid like air' (1623, 843), and his second conclusion was: 'it seems (*videtur*) more probable that the sphere that contains the stars is solid' (1623, 845). The uncertainty indicated by repeated uses of the verb 'seems' underlined the epistemic status of these views as merely probable or more probable.

Of course 'probable' was used in various ways in these discussions. According to one tradition that was already well-established in Mersenne's time, astronomical hypotheses could be understood as merely 'saving the phenomena' (Duhem, 1969), i.e. they provide a mathematical model by which accurate predictions of the motions of the planets may be made, without claiming that planets actually move, for example, in epicycles or eccentric circles. This tradition offered one way in which Mersenne could reduce the epistemic expectations about what could count as a valuable scientific theory. Mersenne seems to have favoured the instrumentalist answer in reply to question (i) above, and therefore it would be sufficient if 'we save all the phenomena by some other hypotheses that are at least probable' (1623, 917).

Another alternative, however, was to claim that one's theory was more or less probably true, where 'probably' qualified the degree of confidence one has in the truth of a theory. Mersenne adopted the familiar Thomist description of truth as the 'conformity of a reality and the understanding'. In *The Use of Reason*, he defined truth as follows:

> The understanding forms a living image that resembles the object expressly, so that if one saw the object represented in the intellect, one would say that there is a closer union between the object and the understanding than between matter and form, and that the axiom *intellectus et res intellecta sunt unum et idem* [the understanding and the thing understood are one and the same] is true of the representative being of the object. (2002, 67)

This kind of undefined 'conformity' offered very little help in understanding what is meant by the truth of a proposition or theory. One might try to think of an idea as a quasi-optical image in a purely spiritual medium, so that the image looks like (i.e. has some of the same qualities, such as shape, size, etc. as) the object known. But that makes little sense. If one considered, instead, an artificial language of representational symbols with which we report our ideas, it would be easier to make sense of the concept of conformity—for example, one could draw a picture of a cat as a symbol to represent cats. Even in an idealized picture theory of language, however, such symbols could do no more than reflect the external appearances of objects rather than their essences and, as Mersenne recognized, the words in a spoken language could not incorporate any perceptible resemblance to the phenomena they denote (the word 'cat', when pronounced,

could not resemble a cat). Thus, in his discussion of the human voice in *Universal Harmony* (1636), Mersenne considered briefly and then rejected the suggestion that there is a natural relation between spoken words and the realities to which they refer:

> But since the sound of words does not have a relation to natural, moral, and supernatural things such that their mere pronunciation would enable us to understand their nature or their properties, because sounds and movements are not characters that are attached to the things they represent until human beings, having gathered together, gave words the meanings that they wished them to have, and the names that Adam applied to animals are naturally so indifferent that they could signify stones or trees as easily as animals…the letters, syllables [of Hebrew etc.] and their pronunciation are indifferent and signify nothing more than what we want them to signify…(1636, 65)[14]

For Mersenne, therefore, our ideas and the words by which we report our ideas are two removes from Aristotelian essences. We have no epistemic access to essences and are limited to knowing their accidental features; secondly, the words by which we report our ideas are purely conventional signs that have no natural relation to ideas or to the observational features of things that we perceive. Despite these concessions, Mersenne still adopted a primitive version of a picture theory of language from the scholastics, for whom some features of grammar matched structural features of the realities that we describe. According to this theory, types of word (such as verbs) correspond to types of reality (actions), and such a minimal categorial correspondence links language to reality in a way that compensates for the arbitrariness or conventionality of the words we use. Thus, although propositions are not pictorial images that resemble essences, Mersenne assumed that the categorial structure of language makes it possible to represent those features of reality that we can observe or experience.

> Although our words, which grammar teaches, do not represent the essence of things, they still make us remember what we have understood about each thing by the power of our mind; and since we cannot base names on the essences [of things], we base them on their effects, their actions, their resemblance [to other things], and on other accidental features. (1625, 72)

Mersenne thereby demoted propositions from their scholastic status as conforming to natural essences, and limited them instead to reporting accidental features of phenomena. But he continued to assume, as a scholastic sympathizer, that our sentences may report our experiences truthfully, by exploiting an assumed conformity of the categorial structure of language to the phenomena that they signify.

Despite this reduction of the kind of knowledge that is available in sciences—which offer a systematic treatment of things insofar as we perceive them rather than an 'absolute' knowledge of things according to their 'true nature' (1625, 50–1)—Mersenne claimed that there are indubitable axioms in metaphysics. 'It is impossible that one

[14] The pagination in *Harmonie universelle* begins anew at the start of each book; the citation is from p. 65 of the 'The Voice'.

and the same thing be and not be; that is so true that it is impossible to doubt it if one has the slightest trace of understanding and judgement' (1625, 52). Mersenne doubted that anyone ever doubted or could deny that axiom, unless they were so ignorant that they failed to understand its meaning—thereby suggesting that the very meaning of the words used was enough to decide its truth-value. He also thought there are indubitable principles in logic, such as: 'what one says about something . . . is either true or false, and it is impossible that it could be true and false in its entirety and in the same respect' (1625, 53). Mersenne was equally certain about many other common axioms that were widely accepted by philosophers, such as 'that the whole is greater than its part, and all right angles are equal', and thought that the truth of such principles was independent of the character or any other personal features of those who endorse them.

The Minim friar provided one further example of certainty in 'science' in his very extensive discussion of mathematics. He often referred to the certainty of mathematics in general, and in particular to the certainty of arithmetic and geometry. In the case of Euclidean geometry, he argued against sceptics that:

> If there is anything evident, clear, and certain in the world, it is found in geometry. This is so true that, for a period of almost two thousand years, no one has been able to find anything false in the fifteen books of Euclid's *Elements*. (1625, 717–18)

He had commented previously that even if Euclid were the 'most immoral man in the world' his theorems would remain true because 'the truth of the sciences is independent of our customs and our lifestyles' (1625, 108). Mersenne rejected sceptical concerns about the reality of numbers—it was irrelevant to him if numbers were merely idealized entities in the human mind (1625, 275)—and, even when applied to physical realities, he claimed that mathematical reasoning retained the same level of certainty that it enjoyed in its abstract or formal presentation (1625, 433). He accepted, however, that the certainty of knowledge-claims that involve mathematical reasoning but rely ultimately on experience is compromised by the uncertainty of the experiential premises on which such items of knowledge depend.

Mersenne provided extensive comments on Bacon's *Novum Organon* in Book I, Chapter xvi of *The Truth of Sciences*. He was not enamoured of Bacon's 'idols', and he even warned readers that the Chancellor was a 'heretic' and therefore liable to lead them astray in religion (1625, 216). Nonetheless, he complimented Bacon on the benefits of experimental research, but with the same qualification already mentioned—that one should distinguish between the inner natures of phenomena (which are inaccessible) and their external appearances:

> Whatever phenomena one considers . . . one should not think that we can penetrate to the nature of individual things or to what occurs within them because our senses, without which understanding can know nothing, perceive only what is external; one may anatomize or dissolve things as much as one wishes but . . . we will never get to a point where our understanding is equal to the nature of things; that is why I believe that Verulam's plan is impossible. (1625, 213)

These critical comments were partly inspired by Bacon's critique of Aristotle and, in contrast, by Mersenne's trust in the explanatory categories of scholastic philosophy. They also seem to concede that, not only in astronomy, but in all knowledge of natural phenomena, saving the phenomena (1625, 231) was sufficient to constitute knowledge. Mersenne's own interest in experimental work, and in applying mathematics to measure phenomena (including sound, in the study of music), was amply confirmed by his extensive correspondence with natural philosophers, including Descartes, and by his agreement to conduct experiments on barometric pressure in 1647–8, the results of which were to be exchanged with Pascal and Descartes (Clarke 2006, 358–9).

Mersenne's replies to sceptics thus included an attempt to redefine knowledge in such a way that it omitted two of the defining features of Aristotelian 'science', namely an understanding of the essences of things that are said to be known, and a syllogistic demonstration of their properties from universally true propositions about their essences. The Minim friar was willing to reconceptualize much human knowledge as nothing more than a systematic report of what we can perceive about natural phenomena, in which we attempt to correct possible misperceptions by comparison with other experiences and artificially arrange ideal conditions in which experiences that are not normally available are made possible by experimental techniques. At the same time, Mersenne wished to retain the possibility that some axioms are self-evident or indubitable, and that our knowledge of theological truths is insulated from the contingencies of human error. Paradoxically, the sheer volume of Mersenne's *oeuvre*, the prolixity of his style, and his penchant for combining music, theology, biblical exegesis, and mechanics in the same book have camouflaged his contribution to developing a new understanding of human knowledge—at least of natural phenomena—as experiential and probable rather than essentialist and certain.

In contrast, although the Jesuit apologist François Garasse (1585–1631) shared Mersenne's penchant for prolixity and his aim to protect religious belief from Pyrrhonist objections, he displayed a total lack of understanding of scepticism. Garasse published *The Strange Doctrine of the Best or so-called Best Minds of our Age* in 1623 and filled over a thousand pages with an unremitting diatribe against all those whom he identified as explicit or cryptic atheists. He included Charron among the latter, but without providing any analysis of Charron's claims or why he had diagnosed him as a secret opponent of the true faith. He substituted invective for argument. Charron was accused of misleading unsophisticated readers who 'swallow the hidden venom of a few sweet words and completely useless thoughts' (1623, 27) that were adapted from Seneca. Charron had allegedly constructed a 'labyrinth of errors' that left him in the same condition as Luther, 'so well balanced between truth and lies that he is sorry to be unable to believe one or the other' (1623, 159). In general terms, he claimed, 'stupidity and malice' (1623, 409) were the two common features of these self-styled best minds, who undermine belief in spiritual creatures, in the immortality of the soul, and ultimately in God (1623, 793, 876). It is clear that Garasse opposed scepticism and defended the truth of his own religious beliefs, but he made no contribution to a

redefinition of knowledge that would support either objective. The same criticism does not apply to Jean de Silhon*.

In *Two Truths: One concerning God and his Providence, the other concerning the Immortality of the Soul* (1626), Silhon identified Montaigne as one of those who defended the thesis that nothing is known (1991, 29, 94,187). Silhon argued for the opposite view, that at least some propositions are self-evident:

> There are some propositions and axioms that are clothed with such clarity and are so self-evident that they are convincing once they are conceived, and it is impossible for any understanding to reject them . . . for example, *that each thing either is or is not; that everything that exists draws its being from itself or received it from another; that the whole is greater than its parts*, and so on. (1991, 29)

Silhon also pointed out that Pyrrhonists contradict themselves by claiming to have at least one item of knowledge, viz. the knowledge that they know nothing. Even if they did not claim to know this—but merely not to know if they know anything—he accused Montaigne of assuming a capacity for making reliable inferences in a chain of interlinked doubts that is inconsistent with his fundamental thesis.

Silhon offered two other objections to Pyrrhonism that were not designed merely to undermine it. One was to challenge the assumption that, in order to know something, one must know it perfectly, as Sanches had argued.

> In summary, we are not in this world in order to have a clear and perfect knowledge of everything; we have as much knowledge of things as we need in order to achieve the objective for which we are here, which is to live well. (1991, 185)

Silhon did not offer an analysis of various degrees of certainty, nor did he suggest what level of certainty would be sufficient for different purposes. He did, however, provide a second and very persuasive argument against those who compared unfavourably the certainty of what is known from revelation and the uncertainty of other knowledge-claims: the former presupposes and relies on the latter.

Silhon argued that religious faith presupposes human faith and sensory experience. For example, in the case of Christianity, one must be able to know that Jesus was born at a certain time, that he performed miracles, that he claimed to be the Son of God, etc., before accepting as divinely revealed what was written about him in Scripture. Therefore, the only link between the faith of religious believers in the seventeenth century and the evidence on the basis of which they believed in the content of certain historical documents was as uncertain as any other historical or factual claim about the past:

> From this you may conclude how temerarious is the opinion of Montaigne, and of some other trouble-makers, even though they are Catholic, who say that we cannot be certain of anything except what God has revealed to us. If that is true, then we certainly cannot be certain even of what was revealed, because if the human faith that we spoke about is deceptive . . . so also is the Christian religion, because its remote foundation has been removed. (1991, 187)

Silhon returned to this anti-sceptical theme again in 1634, in *Concerning the Immortality of the Soul*. His interest in that topic was not primarily metaphysical; he claimed that the stability of political structures and civil society required belief in the immorality of the soul to motivate people to observe their duties to the sovereign. On this occasion, then, he presented a version of the argument that Augustine had used, in *The City of God* (XI, 26),[15] to show that we are certain of our own existence any time we consider it or even doubt or deny it.

> Here is a piece of knowledge that is certain, no matter what way one turns it and from what perspective one considers it… Every person… who has the use of judgement and reason can know that *they are*, that is, that they have a being, and that this knowledge is so infallible that, even if all the operations of the external senses were deceptive in themselves or if one could not distinguish them from the operations of a disturbed imagination, or if one could not be convinced that one is awake or asleep and whether what is seen is true or is an illusion and pretence, it is impossible to be mistaken in this judgement. It is impossible *not to be* in the case of any person who has the capacity to enter into themselves, as some people have, and to judge that *they are*. The following truth is as perceptible to reason as the Sun is to healthy eyes, namely, that an action presupposes being, that it is necessary for a cause to exist in order to act, and that it is impossible for something that does not exist to do anything. (1934, 178–9)

Despite the similarity with the argument that later appeared in Descartes's *Discourse on Method*, Silhon's argument—as Popkin has emphasized (2003, 139)—involves an inference on his part from a metaphysical principle to the conclusion that he himself exists. He assumes that it is necessary for a cause to exist in order to act and that one may infer from that principle that one knows one exists if one is aware of acting. That would not be an unreasonable conclusion for most readers, but for a dedicated sceptic it may be subject to doubt for two reasons: the metaphysical principle on which it relied may be doubted, and the reliability of the inference involved may also be subject to doubt.

Even if Silhon's argument had succeeded, however, it was unlikely to convince Pyrrhonists that knowledge was more widely available than they had claimed. For Silhon, nonetheless, this was not an insignificant item of knowledge. He claimed to use this foundation to prove the existence of God and the immortality of the soul, although either conclusion presupposed both the validity of one's inferential powers and the certainty of many other premises that were required to move from 'I exist' to the theory of the existing subject that he defended. Silhon's argument, however, was sufficiently similar to the more famous version of it that appeared in Descartes that there is good reason to assume that the latter borrowed and adapted it to his own philosophical needs.

[15] 'I do not at all fear the arguments of the Academics when they say, What if you are mistaken? For if I am mistaken, I exist. He who does not exist clearly cannot be mistaken; and so, if I am mistaken, then, by the same token, I exist… Since, therefore, I would have to exist even if I were mistaken, it is beyond doubt that I am not mistaken in knowing that I exist. For, just as I know that I exist, so also do I know that I know' (Augustine 1998, 484).

2.6 Descartes and Metaphysics

René Descartes attended the same Jesuit college at La Flèche as Mersenne, where he acquired a scholastic education in Latin, philosophy, mathematics, and rhetoric.[16] His initial attempts to explain the source and limits of human knowledge were sketched in *Rules for Guiding one's Intelligence in Searching for the Truth*, which was abandoned in 1628 when half completed and published only posthumously. During the period 1629–33, Descartes lived in the United Provinces and devoted all his time and energy to drafting a wide-ranging study of natural phenomena that included sections on light and physiology, and on other topics in natural philosophy under the title *Le Monde* [The World]. This was also abandoned abruptly in 1633, when Descartes heard that Galileo had been condemned in Rome and feared that he might incur a similar censure because he also supported heliocentrism. Since he had already devoted almost five years to this project, however, Descartes was reluctant to discard it completely and he found a way to publish some sections of *Le Monde* as three essays on dioptrics, meteorology, and geometry in 1637. But, still fearful of an ecclesiastical censure, he published these essays anonymously in Leiden, and added a prefatory essay to explain the full scope of his abandoned project and the novelty of the method used in all his work. The title of that preface was *A Discourse on the Method for Guiding one's Reason and Searching for Truth in the Sciences*.

It was no accident that the titles of Descartes's two attempts to explain how he tried to acquire knowledge were remarkably similar, since he borrowed extensively from the first one—the incomplete draft of the *Rules*—to write the *Discourse*, in great haste, as his printer was setting the type for the three essays in 1636. It was an unfortunate accident, however, that generations of readers of the *Discourse on Method* detached that preface from the book for which it was written, and that they frequently failed to understand it as an explicit attempt to compete with Bacon's *Novum Organon* and to develop what subsequently came to be called a scientific method. One reason for this misreading, evidently, was the inclusion in Part IV of the *Discourse* of an early version of the famous *Cogito* that re-appeared in the *Meditations on First Philosophy* in 1641, and the popularity of the latter in the history of Western philosophy (although it too is usually read today in editions that omit eighty per cent of its original content, i.e. the objections and replies). Despite this intrusion of metaphysics, however, the *Rules* and the *Discourse* were primarily concerned with how Descartes tried to acquire reliable knowledge in mathematics and natural philosophy in an intellectual context that was frequently challenged by Pyrrhonist objections. To understand Descartes's reply to Pyrrhonism, therefore, one should read his epistemic advice in the context in which it was offered—as a defence of the possibility of reliable knowledge in natural philosophy.

[16] Mersenne probably began his studies at La Flèche when the school opened in 1604, at the same time as Descartes's older brother Pierre, while Descartes seems to have started attending in 1607. Mersenne was eight years older than Descartes.

Since Descartes discussed metaphysics and physiology side by side in the *Discourse*—his explanation of blood circulation is discussed at much greater length, in Part V, than the *Cogito* in Part IV—one has to wonder if he thought that all kinds of knowledge share the same epistemic features or, alternatively, that they differed in significant respects. The second option is the most plausible interpretation of his complete *oeuvre*. Although all the relevant elements of his reply to scepticism do not appear together in any single publication, Descartes proposed a number of complementary theses that addressed the certainty or uncertainty of different kinds of knowledge, the diverse ways in which the latter may be acquired, the distinctive features of hypothetical knowledge in natural philosophy, and especially the urgent need to discard the conceptual and methodological limitations of scholastic philosophy.

The first issue that Descartes had to consider, therefore, when drafting the *Rules* and the *Discourse*, was whether he should or could prescribe a reliable method for acquiring different kinds of knowledge—although it is unclear how one could justify that kind of prescriptivism—or whether he should examine samples of relatively successful efforts to acquire knowledge and then describe how well they seem to have succeeded.[17] The *Discourse* suggests that he adopted the second alternative: 'my plan here is not to teach the method that everyone must follow in order to guide their reason, but merely to explain how I have tried to guide my own' (VI 4: D 7).[18] Descartes's strategy was to survey various kinds of knowledge, to compare their relative reliability, and to construct a theory that might explain how we can acquire what deserves to be called knowledge by using the sensory and intellectual faculties with which we seem to have been endowed by nature. In other words, Descartes was attempting to compose a naturalistic epistemology.

One of the first indications of Descartes's naturalism in epistemology is found in the *Rules*, when he summarizes in Rule 12 everything that was said in the previous eleven rules. 'Only two things are relevant for knowledge of things, namely, we who know, and the things themselves to be known' (X 411: D 151). He then offers some comments about each of these two factors in sequence. As regards the subject, he suggests various hypotheses about how sensation works, how images are stored in the imagination (which is a function of the brain), and how judgements are made in the intellect.[19] Once this hypothetical account of the cognitive faculties available to the knowing subject was outlined, he needed to say something about the objects of knowledge. Here again he recognized that his account was hypothetical: 'there are certain things that

[17] There is an unavoidable problem here of how to gauge the success of one's attempts to acquire knowledge without already having a norm by reference to which success is measured. See Kitcher (1992).

[18] The sources of citations from Descartes are identified by the roman numeral of the corresponding volume in the Adam and Tannery edition of Descartes (1964–76), and by 'D' and 'M'; the former refers to Descartes (2003a) while 'M' refers to Descartes (2003b).

[19] The summary in Rule 12 is offered as 'the most useful way of conceiving everything within us that is used for knowing things' (X 412: D 152). Descartes claimed merely that it was helpful to conceive of all these things in that way ['*haec omnia ita concipere multum juvat*'; X 413] because it was very simple.

must be assumed here, as in the discussions above' (X 417: D 156), although they may not be accepted by everyone.

> But that is not important, even if they are believed to be no more true than those imaginary circles by which astronomers describe their phenomena, on condition that, by using them, you distinguish between true and false knowledge about anything. (X 417: D 156)

However, just when readers may be expecting various assumptions about the *objects* of knowledge, as he had promised, Descartes retreats from a discussion of objects to offer suggestions about how we conceive of them.

> We say first, therefore, that to view things from the perspective of our knowledge is different from speaking about them as they really are . . . since we are discussing things here only in so far as they are understood by the intellect, we apply the term 'simple' only to those things the knowledge of which is so clear and distinct that they cannot be divided by the mind into other things that are more clearly known. Shape, extension, motion, etc. are examples of this. (X 418: D 156)

Our simple conceptions may be distinguished further into those that are 'completely intellectual, or completely material, or common' (X 419: D 157).

It remains to be seen whether Descartes subsequently abandoned this explicit acknowledgement that, when we talk about the *objects* of knowledge, we are actually talking about the ways in which we conceive of them. It is difficult to understand what other perspective one could adopt. Once this subjective perspective is acknowledged, it implies the possibility of alternative conceptual frameworks, and of the need to give reasons for choosing between such alternatives when they are available. This is precisely what Descartes did when confronted with the choice between scholastic conceptions of natural phenomena and his proposed alternative, which is discussed further in Chapter 4.

As indicated above, Descartes prepared the *Discourse on Method* as a preface to three essays on natural philosophy and mathematics, although he wished to illustrate the scope and effectiveness of his method by showing how it applied to other disciplines that were not included in the 1637 publication, such as physiology and metaphysics. Accordingly, at the beginning of Part IV, he summarized conclusions that he had reached in an unpublished essay on metaphysics that he had drafted in 1629. He assumed that, while it is sometimes necessary 'to act on the basis of opinions that are known to be uncertain as if they were indubitable' (VI 31: D 24), in the case of metaphysics a much higher degree of certainty is required. It was only in that context, therefore, in contrast with other disciplines, that he agreed to address the challenge of Pyrrhonism. As most of his contemporaries realized and as many of them pointed out, Descartes was so often satisfied with rather flimsy explanations that he never conceded the validity of sceptics' objections or the need to reply to them—except in metaphysics.

All the sceptical arguments that Descartes considers in the *Discourse* were already familiar in French literature, at least since the middle of the previous century. One was

the extent to which our sensations may deceive us about the properties of something that is seen, heard, etc. Another objection was that the experiences we have while dreaming are sufficiently similar to those we have while awake that, if dreaming experiences are assumed not to be veridical, waking experiences might be equally untrue. The third sceptical objection was that human reasoning may be so fundamentally unreliable that he should reject as false all the demonstrations he had previously constructed even in simple geometrical proofs. This final worry was rephrased in the language of an evil genius in the *Meditations*. But this sceptical argument can also be expressed without any reference to a deceptive god or an evil genius: if our reasoning ability were systemically misleading or unreliable, one could not assume its reliability in order to argue against sceptics without begging the question. If these objections were not addressed, therefore, Descartes would have been forced to accept the conclusion of the First Meditation, that 'there is nothing among my former beliefs that cannot be doubted' (VII 21: M 21).

As an initial response, Descartes adopts the retort that was used by Augustine and Silhon, namely, that there is something so fundamental about being conscious of one's own thinking that it is impossible to think (or even to doubt or deny that one is thinking) without acknowledging that '*I think, I exist* is necessarily true whenever it is stated by me or conceived in my mind' (VII 25: D 24). Descartes does not appeal, however, as Silhon had done, to some other metaphysical principle from which this conclusion may be deduced, because any such principle and the inferential step that it supports would both be rejected by a radical Pyrrhonist. He claims instead that the certainty of 'I exist' is intuitively accessible to anyone who is conscious of thinking. If the certainty of 'I exist' were thus protected from Pyrrhonist objections, at least at the time of thinking about existing, the next challenge for Descartes was to extend his knowledge-claims further and to explain the extent to which they may be similarly protected.

One of the most sympathetic authors of objections to the *Meditations* was the well-known theologian and defender of Port Royal, Antoine Arnauld (1612–94). In the Fourth Objections, he asked how Descartes could avoid a circular argument by using reason to defend the reliability of his cognitive faculties:

> How does he avoid committing the fallacy of a vicious circle when he says that we are certain that what is perceived clearly and distinctly is true only because God exists? But we can be certain that God exists only because we perceive it clearly and distinctly. Therefore before we are certain that God exists we have to be certain that whatever we perceive clearly and distinctly is true. (VII 214: M 90)

If it is possible to avoid circularity here, it relies on a distinction between the certainty and the truth of a knowledge-claim, and on Descartes's understanding and justification of inferences.

Descartes distinguished three kinds of certainty, moral, psychological, and metaphysical (Gewirth, 1941). In the Fourth Part of the *Principles of Philosophy*, he described as morally certain those claims 'that are sufficient for our daily lives even

though, when compared with the absolute power of God, they may be false' (VIII-1, 327).[20] The other two kinds of certainty are discussed in the context of the *Meditations*. Psychological certainty results from clear and distinct perceptions, which are such that the mind cannot resist assenting to them: 'the nature of my mind is certainly such that I still would be incapable of not assenting to them [geometrical properties], at least as long as I perceive them clearly' (VII 65: M 52).[21] Since Descartes understood truth as 'the conformity of thought with its object' (II, 597), he had to concede that some opinions that were so clear and distinct that he could not avoid believing them may have been untrue, because of the metaphysical doubts considered in the First Meditation. Once those doubts are shown to be unreasonable, however, psychological certainty is converted to what Descartes calls metaphysical certainty. 'This certainty is based on the metaphysical foundation that God is supremely good and minimally misleading and therefore the faculty he gave us for distinguishing between what is true and false cannot err as long as we use it properly and by its assistance perceive something distinctly' (VIII-1, 328).

These distinctions between truth and certainty, and between different types of certainty, were sufficient to convince Descartes that he had avoided Arnauld's objection. Even if the arguments for God's existence and the consequent reliability of our cognitive faculties were more plausible than they are, however, Descartes could not prove that all clear and distinct ideas are true, but only that he was certain that there was no good reason to think otherwise. This acknowledgement of the limits of what can be proved was also consistent with his general account of inference.

Descartes was a notorious critic of the logical strategies used by school philosophers to convince one's opponents in an argument, which he describes as dialectic.[22] He was also unimpressed by syllogistic logic, not because he thought its patterns of argument were invalid but because they presupposed a foundation that its proponents failed to provide,[23] and because they were much more restrictive than the range of valid inferences of which all rational agents are capable. Descartes had outlined, in the *Rules*, the suggestion that all reliable knowledge is acquired by 'intuition' and 'demonstration'. He also explained in the same context that, while he had no choice but to use familiar Latin terms such as '*intuitus*', he wished to use them in a novel way. By *intuitus* he

[20] The French version of the same text (which was not translated by Descartes) is slightly different: 'I distinguish two kinds of certainty. The first is called moral, which is sufficient to regulate our conduct or is as great as the certainty we have about things that we do not usually doubt and that are relevant to living our lives, although we know that, absolutely speaking, it is possible that they are false. Thus those who have never visited Rome do not doubt that it is a city in Italy …' (IX-2, 323).

[21] See also: 'I still was unable not to judge that whatever I understood so clearly was true' (VII 58–9: M 48); 'my nature is such that, as long as I perceive something very clearly and distinctly, I am unable not to believe that it is true' (VII 69: M 55).

[22] See the *Rules* (X 405–6: D 148) and the *Conversation with Burman* (V 175). For Descartes's account of inference, see Gaukroger (1989).

[23] The problem about a foundation was highlighted by Frege (1964, 15): 'The question why and with what right we acknowledge a law of logic to be true, logic can answer only by reducing it to another law of logic. Where that is not possible, logic can give no answer.'

meant 'the undoubting conception of a pure and attentive mind which arises from the light of reason alone and which is more certain than deduction because it is simpler' (X 368: D 123). Although much more needs to be said to explain this non-scholastic adaptation of the term, the essential feature of Cartesian intuition was that it referred to a simple, ultimate intellectual act that cannot be reduced to or defined in terms of some other more fundamental act.

Every inference is then understood as either (i) a single act of intuition, as in the inference, 'I think, I exist', when one sees the relation between two concepts or two propositions without appeal to any rule or axiom, or (ii) as a series of interlinked intuitions, each of which is justified by the same natural light of reason. If one could complete a Cartesian deduction by a number of self-warranting intuitions, therefore, it would lead to the conclusion that the thinker of the *Meditations* is certain that the proposition 'God exists' is true. The sceptic is likely to object, at that point, that Descartes has failed to show that 'God exists' is true, and that he has merely shown that he is certain of its truth. The Cartesian reply depends on acknowledging the subjective limitations of our cognitive faculties.

One of the central claims in a naturalistic epistemology is that even the most fundamental laws of logic are, in principle, open to revision. Since Descartes argued that laws of logic are not independently justified and that, insofar as they formalize modes of inference that are certified by the natural light of reason alone, they merely reflect our way of thinking rather than some truth that can be known a priori. Henry More wrote to Descartes in 1649, and challenged (among other things) his denial of the possibility of a vacuum. The English Platonist asked whether the concept of extension applies to God and whether God's extension might fill a vacuum. In reply, Descartes made a distinction between what God is capable of doing and what he (Descartes) was capable of conceiving or, as he expressed in in the *Rules* text quoted above, between how things are in reality and how we conceive of them.

> I know that my intellect is finite and the power of God is infinite, and therefore I never determine anything about God's power. I only consider what may or may not be perceived by me and I am very careful that none of my judgements ever differs from my perceptions. For that reason I boldly claim that God is capable of doing everything that I perceive as possible. But I do not rashly deny, on the contrary, that he can do what I cannot conceive; I say simply that it involves a contradiction. (V 272: M 170)

That suggests that the patterns of inference on which we rely to expand our knowledge are characteristic of our ways of perceiving or understanding things; although our beliefs are constrained by those logical rules, the realities to which they are applied may be otherwise. This is even more explicit later in the same letter when Descartes told More: 'although our mind is not the measure of things or of truth, it certainly should be the measure of whatever we affirm or deny' (V 274: M 172). In other words, one should limit one's affirmations to what one believes with the appropriate degree of certainty, but one cannot escape from the possibility that even our most certain beliefs may be untrue.

This was further confirmed by Descartes's comments in 1644 about God's powers, when he conceded that it is possible for God to make contradictory propositions true at the same time (IV 118–19). Descartes had distinguished, in reply to a query from Mesland, between God creating necessary truths and God creating them necessarily (IV 118). He claimed that God freely created necessary truths, as he had explained to Mersenne in 1630: 'the mathematical truths that you call eternal have been established by God and depend on him completely, just like all other creatures' (I 145). In other words, necessary truths are contingent on God's free choice and, in principle, could have been otherwise. Our minds are also created to perceive them as necessary, but that is simply because God is the creator of both the truths and our minds, and he matched the latter to the former. We should not, however, conceive of God as being constrained by our logic or reason. Since God creates eternal truths, the arbitrariness of God's decrees dilutes their apparent necessity. Thus, eternal truths are necessary only in the sense that God created us in such a way that we perceive them as necessary.

Descartes had come close to making a similar distinction in reply to one of the Second Objections, which had been collected from diverse sources and submitted by Mersenne. Mersenne was rightly worried by Descartes's argument that, if some proposition is perceived clearly and distinctly, then it must be true. He asked Descartes: 'Why should it not be in your nature to be subject to constant . . . deception?' (VII 126). He thereby raised the possibility that God might have given human beings a nature such that they are often deceived even about matters of which they have a clear and distinct perception, and that God may even have had benevolent reasons for deceiving us, just as doctors or parents often deceive children for their own benefit.

Descartes's reply is less than convincing, but it includes a distinction between the kind of certainty that it is possible for human beings to acquire and some other kind of absolute truth that may be available to God or an angel.

> Why should we be concerned if someone happens to pretend that the very thing, about the truth of which we are so firmly convinced, appears false to God or to an angel and therefore that it is false, absolutely speaking? Why should we be concerned about such an absolute falsehood, for we do not believe in it at all and have not the slightest evidence to support it? (VII 145: M 81)

Although this is more dismissive of Mersenne's objection than is warranted by the effectiveness of the reply, it at least seems to concede a distinction between (1) the limits within which human cognitive faculties operate and (2) some other ideal of absolute truth of which we have no conception. In effect, Descartes is claiming that when we use our cognitive faculties as best we can, we have reached the limits of what is epistemically possible for human beings and there is nothing further to be done. And since we can do no better, we should not be concerned about higher epistemic ambitions that are beyond our reach.

It was not surprising, then, that Descartes seemed to dismiss almost casually the Pyrrhonist objections of the First Meditation when he reflected on them in the Sixth Meditation.

> I know that all the senses tell me much more frequently what is true rather than false . . . and I can almost always use more than one of the senses to examine the same thing . . . The hyperbolic doubts of recent days should be rejected as ridiculous, especially the extreme doubt that arose from my failure to distinguish being asleep and being awake. I realize now that there is a big difference between them . . . when things occur in such a way that I see distinctly where they come from, where and when they occur, and when the perception of them is linked with the rest of my life without any interruption, then I am perfectly certain that they occur to me while I am awake and not while asleep. (VII 89–90: M 70)

Descartes rejected the implicit assumption of Pyrrhonists that there is some transcendent ideal of absolute certainty to which human beings may reasonably aspire and by comparison with which our actual knowledge is deficient.[24] He argued instead that we have the limited cognitive capacities that nature or God has given us, and knowledge is what we get when we use those faculties as well as possible. In particular, we have no access to independent axioms or principles by which to test the validity of our reasoning; instead, we validate all inferences by reference to their intuited clarity. We also rely on sensory information for much of our knowledge of the natural world and, although our senses may sometimes be deceptive, we can usually correct unreliable perceptions by recourse to other sensations, to memory, and to reason.[25]

None of these elements can disguise the manifest weakness of Descartes's efforts, in the *Meditations*, to provide a foundation for the kind of metaphysical certainty that he aimed to realize in that essay. The simplest way to accommodate these disparate elements in Descartes's work—though it was one that he adamantly rejected—would have been to accept the interpretation that his supportive Dutch colleague, Henricus Regius, offered in a letter he wrote to Descartes in July 1645. Regius suggested that Descartes did not believe the metaphysical arguments that he had presented in the *Meditations* and—though he did not say this—they were merely a defence against possible condemnation by Rome or a reluctant concession to requests from Mersenne that Descartes contribute to the Minim's apologetic programme against critics of Catholicism.

> Many honourable and intelligent people have often told me that they think too highly of your intelligence not to believe that, in the depths of your soul, you hold opinions that are the opposite of those that appear publicly under you name . . . many of them here [in the United Provinces]

[24] For that reason, he was not attempting to complete what Williams (1978) called a 'project of pure inquiry'.

[25] Descartes had provided an explanation, in the second discourse of the *Dioptrics*, of why an oar appears bent in water by his discovery of what is usually called Snell's Law. If a ray of light is bent when it strikes a medium at an angle of incidence of i and the angle of refraction is r, then $\text{Sin } i/\text{Sin } r$ is the refractive index of the medium.

are convinced that you have discredited your philosophy very much by publishing your metaphysics. (IV 255)

Descartes felt so betrayed by this letter from a correspondent who had been publicly defending Cartesian natural philosophy at the University of Utrecht that he ceased all subsequent communication with him.[26] Whether or not Descartes's engagement with metaphysics was genuine or successful, however, is somewhat marginal to the success of his life's work, as Regius suggested. Descartes devoted almost twenty years in the United Provinces to the construction of a new natural philosophy, and he then described the methods used to acquire that kind of knowledge without any hint of sympathy for the metaphysical or hyperbolical doubts of Pyrrhonism. This type of experimentally based knowledge is discussed in Chapter 4. Once the one-dimensional definition of knowledge that was assumed by Pyrrhonism was abandoned, it became clear that the fundamental sceptical arguments that Descartes addressed in the *Meditations* could not be answered without adopting an impossible, transcendent standard that applied only to divine omniscience.

2.7 Conclusion

The sceptical arguments of the ancients were deployed anew by various authors in early modern France as an instrument with which to undermine the alleged dogmatism of their opponents—whoever they happened to be—and to challenge the dominant position within philosophy of Aristotle's definition of knowledge and its continued defence within scholasticism. Some authors used it paradoxically to cast doubt on all rational argument and to protect thereby the alleged certainty of religious beliefs that (they assumed) depended on revelation rather than on mere human reasons. The debate between sceptics and so-called dogmatists was initially held captive by their shared assumption of what would constitute genuine knowledge, one feature of which was the certainty of one's beliefs and their resistance to all possible revisions.

Once that assumption was challenged and modified, as it was especially by the development and proliferation of empirical studies of the natural world, it became possible to acknowledge the probability of knowledge-claims without conceding that they are not genuine knowledge. The result was not some version of mitigated scepticism or a mild version of a more radical doubt, but a reclassification of beliefs that are sufficiently well supported to deserve the honorific title 'knowledge'.

[26] Descartes's reply in late July or early August 1645 concluded what had been a long, scholarly, and friendly correspondence between them; see Bos (2002). Descartes explained his reasons for the disagreement in a number of publications, including the French edition of the *Principles* (IX-2, 19–20) and his *Comments on a Certain Manifesto* (VIII-2, 341–69: M 183–203).

3

Faith and Reason

'It was never the intention of Sacred Scripture to teach astronomical sciences.'[1]

3.1 Introduction

Contested philosophical questions were often decided, in early modern France, by recourse to religious beliefs or (more narrowly) by the authority of the Bible. This is confirmed by the way in which authors reflected on ethical and political theories (Chapters 6, 7), by the arguments that were used in disputes about women's equality (Chapter 8) and, even more notoriously, by natural philosophers' appeals to biblical texts to resolve theoretical disagreements in astronomy. For example, when Pierre Barbay published a commentary on Aristotle's physics four decades after the Galileo affair and considered the relative plausibility of the planetary systems proposed by Tycho Brahe and Copernicus, he acknowledged that, in order to choose between them, he needed an appropriate criterion (1676: I, 407). The criterion to which he appealed, however, was neither empirical evidence nor the explanatory success of the competing theories, but 'the unique authority of sacred scriptures'. Barbay explained his choice as follows: 'we hold our understanding [*intellectus*] captive in submission to Christ, to whom we consecrate this work of ours with our whole mind' (Brockliss 1981, 46).

That was not a surprising option for a scholastic commentator on Aristotle. It was surprising, however, that Gassendi endorsed a similar principle in *Paradoxical Exercises*, which was written explicitly as a critique of Aristotle:

> We declare right from the beginning, and even in the title of this work, that no knowledge of that sort [i.e. belief in mysteries of orthodox religion] is being impugned here. Indeed, that is not knowledge as Aristotle conceived it—which would link certitude with evidence and provide a demonstration derived from natural principles—but it is based on faith alone derived from revelation and divine authority… (1972, 85–6)[2]

[1] Galileo, *Letter to the Grand Duchess Christina* (Galileo 1895, 344).

[2] I have modified Brush's translation, which is based on Gassendi's *Exercitationes Paradoxicae adversus Aristoteleos* (1658 III, 192a).

It was possibly even more surprising that Descartes wrote in the following terms, in the final sentence of a work that was intended to replace scholastic textbooks of natural philosophy, the *Principles of Philosophy* (1644):

> Nonetheless, while being mindful of my own limitations, I affirm nothing but submit all these explanations[3] both to the authority of the Catholic Church and to the decisions of those who are more prudent; and I do not wish anything to be believed by anyone unless they are convinced by evident and irrefutable reason. (VIII–1, 329)

This submission to Rome and the Church's censors in France was consistent with the efforts Descartes had made in 1641, before publishing the *Meditations*, to obtain prior approval from the theology faculty of the Sorbonne (1.4). It should be noted, however, that Descartes did not concede in the *Principles* that biblical passages or church authorities were competent to resolve disputed questions in natural philosophy. He recommended, rather, that evident and irrefutable reason should guide readers' beliefs and merely acknowledged the authority of theologians—as Galileo had done—when empirical and rational evidence failed to decide between competing explanations.[4]

If these disparate expressions of submission to the authority of the Church were genuine, they require an adequate explanation of what appears to have been a widely held view that religious faith was either superior to reason or, at least, an alternative source of knowledge and certainty, even in natural philosophy. The assumed justification for this principle was that revelation is God's word and that God is incapable of making erroneous reports. The challenge, then, was to link (a) religious beliefs that were classified as indubitable in the early modern period with (b) much earlier allegedly divine interventions in human history, and to do so in such a way that the chain of transmission between the latter and the former was not subject to familiar sources of human error. Belief in alleged divine revelations could only be as certain as the weakest link in the chain of evidence that extended over many centuries and connected an early modern interpretation of alleged historical events with human writings that were inherited from obscure, ancient sources.

When addressing that issue, philosophers discussed the nature of belief and the ways in which religious belief (or faith) was similar to or distinct from other beliefs. Since the ultimate source of religious belief for Christians was the Bible (plus, for the Catholic Church, its traditional interpretation by previous generations of Christians), they had to offer some account of the following: what did 'divine inspiration' mean; how should the words that were transmitted from ancient sources be understood; what should be done when an interpretation of a biblical passage appeared to conflict with

[3] Descartes failed to specify the referent of the Latin phrase '*haec omnia*' that he was submitting to the authority of the Church; he most likely meant the explanations of natural phenomena to which he referred in the previous sentence and for which—at least the more general among them—he claimed a high degree of certainty.

[4] Carraud (1989, 277–9) shows that Descartes never appealed to biblical texts to resolve philosophical questions, although he was forced by critics to discuss specific scriptural passages to show that his philosophy did not contradict them.

what was known from experience or reason; and, most fundamentally, how should they conceive of the God that allegedly intervened in human history and taught very specific doctrines that church members were required to believe as a condition of religious salvation? The first question, then, concerns how they understood belief or faith.

3.2 Religious Belief

If *p* is any religious belief expressed in propositional form, it would have been possible for fideists in France simply to assert, without justification: 'I believe that *p*.' It was more common, however, for Christians to justify a belief in *p* by making an independent claim to the effect that '*p* was divinely revealed' (Jolley 2007, 443–4). If *p* were divinely revealed, various assumptions about God's veracity and honesty would then be sufficient (if independently justified) to conclude that *p* is true. Questions about the credibility of *p*, therefore, re-appear as challenges to the epistemic status of the belief that *p* was revealed.

The model of belief on which religious believers relied was borrowed from familiar human situations in which someone holds a belief about an event that they have not witnessed. For example, individuals believe reports about historical events from earlier centuries or about geographically distant events or facts that they had not observed. In each case, they rely on the fact that someone else claims to have been in a situation in which they formed a reliable opinion and on the assumption that they have transmitted that opinion honestly and reliably. Hobbes captured some features of this in his analysis of belief in the *Leviathan*:

> When a mans Discourse…beginneth at some saying of another, of whose ability to know the truth, and of whose honesty in not deceiving, he doubteth not…the Discourse is not so much concerning the Thing, as the Person; and the Resolution is called Beleefe, and Faith; *Faith*, in the man; *Beleefe*, both *of* the man, and *of* the truth of what he sayes. So that in Beleefe are two opinions; one of the saying of the man; the other of his vertue. (2014: II, 100)

For Christians in the early modern period, however, their faith was not usually based on the personal testimony of a contemporary witness who claimed to have received a revelation from God; those who claimed to have had such direct communications from God were often suspected of being demonically possessed rather than divinely inspired (1.3). The witnesses whose credibility linked early modern religious believers with the content of their beliefs lived many centuries previously and had bequeathed to readers writings in which they interpreted some of their own experiences as communications from God. For that reason, Hobbes concluded: 'it is evident, that whatsoever we believe, upon no other reason, then what is drawn from authority of men onely, and their writings; whether they be sent from God or not, is Faith in men onely' (2014, II, 102).

Hobbes identified only two objects of belief on the part of the believer—the content of a witness's report and the honesty of the witness. That failed to notice one of the

factors that often cause honest false reports, namely the incapacity of a witness to understand or interpret adequately the matters on which they report. Adults are usually assumed to be capable of reporting competently about familiar facts that fall within the scope of their limited experience. But there are many ways in which they may misperceive something or may misdescribe what they have perceived accurately—as the discussions about scepticism illustrated (Chapter 2). The possibility of misdescription increases in proportion to the theoreticity of the language used to describe what people believe they have perceived. For example, exactly the same events could be understood and described as natural or divine, and the written accounts of those who report them may be completely unreliable without being dishonest if they misunderstand their significance and describe them in a religious language that seems appropriate in their culture. The extent to which natural events may have been interpreted as divine revelations became evident in Spinoza's *Theologico-political Treatise* (1670). All the biblical terms and phrases that appear to denote a personal God who created the universe, who legislates for human beings, etc., could be translated into a naturalistic account of the world and the human invention of a moral law by which wise, co-operative citizens should regulate their behaviour.

The assumed capacity of those who wrote various biblical texts to interpret reliably the events on which they reported, as if God had participated in some way in their occurrence, was subsequently transformed into a theory of divine revelation, which was assumed to occur in various ways. For example, the account of creation in the first chapter of Genesis, the interpretation of which became a focus of controversy as early as the fourth century, could not have resulted from the observation and report of any human witness because it describes events that occurred before the creation of human beings. In that case, religious believers had to assume that God inspired the author of Genesis to describe creation as it was reported there. In other cases, such as sayings of the historical Jesus, the authors of the gospels claim to have reported what God revealed to them indirectly through Jesus Christ. They believed that Jesus was God and, therefore, that whatever he said was said by and on behalf of God. The Council of Trent described this direct transmission from God of truths of faith and morals as having been 'dictated by the mouth of Christ himself or . . . at the inspiration of the Holy Spirit' (Tanner 1990: II, 663).

The Council's doctrine about the inspiration of the Bible was often understood literally by those who defended its teaching. Thus François Garasse argued that there is a 'Holy Scripture, of which the Holy Spirit is truly the author' (1623, 475). Garasse explained the divine authorship of the Bible by analogy with secretaries whom a king employs to write his decrees on paper. Everyone admits, he argued, that a king's secretaries are no more authors of royal decrees than printers are the authors of books that they print. Garasse concluded that 'men are only secretaries, and are not the authors of the Bible' (1623, 475). This analogy might work if one could imagine God dictating the books of the Bible to various authors, and speaking the languages used by them to record what they were told. Since that was so implausible, it seemed more appropriate

to think of divine dictation as a metaphor; the authors, many of whom were anonymous, might be pictured as writing their own thoughts in such a way that their writing was supported by divine authority and, in that sense, was inspired.

Whatever account of divine inspiration one adopts, it necessarily involved the authors of Scripture *interpreting* the events that they claimed to have witnessed, or other events (such as creation) that they could not possibly have witnessed, as being related to God—because the people with whom they spoke (the prophets, Jesus) claimed to have been divine messengers, or the scriptural authors understood some events (such as success in battles or apparently miraculous deeds) as having been caused by God. In either case, the interpretation of the original scriptural author is an essential and independent link (in addition to their honesty and the reliable transmission of their reports) between their writings and the content of what they report.

Any hypothesis of how the Scriptures were written, therefore, confirms Hobbes's fundamental claim, that 'faith in men only' was the only kind of link between believers in the early modern period and the religious truths that they accepted as having been divinely revealed. Evidently, it was possible simply to believe that the Scriptures were divinely inspired without having any supporting evidence for that belief, but it was impossible to use the authority of the Scriptures to justify that independent belief without arguing in a circle. That would involve appealing to the Scriptures to testify to their own divine origin or, in disputes about who had authority to interpret biblical passages, relying on the Bible to authenticate the competence of a particular church or individual to provide an authoritative reading of its content. Locke later attributed such a circular argument to enthusiasts, in the *Essay*: '*It is a Revelation, because they firmly believe it,* and *they believe it, because it is a Revelation*' (1975: IV.xix.10).[5] Without appealing to the special status of the Scriptures, however, it was open to Christians to distinguish two stages in believing any doctrinal proposition—such as those that described God in trinitarian terms—and to accept both on faith. That would involve (a) believing that God inspired certain writings, and (b) then believing that their content was true because God inspired it.

Even if the human status of belief in the divine inspiration of the Scriptures were accepted, however, there remained other disputed questions about which alleged books of the Bible were canonical and, for those that were accepted as such, how to interpret the words that were recorded in the ancient texts.

3.3 Interpreting Biblical Texts

When Christians appealed to the Bible as authority for their religious beliefs, they referred to a collection of writings in Hebrew, Aramaic, and Greek that they accepted

[5] Diderot (1875, 154) objected similarly that the Church's appeal to Scripture to support its alleged infallibility was circular: 'I cannot accept the infallibility of the Church, unless the divinity of the Scriptures is proved to me.'

as authentic expressions of divine communications with human beings. That simple statement, however, conceals numerous disputes between early modern Christian churches about (i) the sources of revelation; (ii) which alleged books of the Bible should be accepted as canonical; (iii) whether the texts were corrupted by various anonymous scribes during the process of transmission; (iv) who was authorized to translate or interpret them; and (v) whether the relevant texts should be understood as if each sentence reported a divine revelation or, perhaps, as if the books provided a more global religious interpretation of human and natural events.

Reformed churches answered the first question—about the sources of revelation—in a radically different way to that of the Catholic Church. The latter addressed the question at the Council of Trent (Session IV) and officially endorsed the doctrine of two sources of revelation, the Bible and tradition, with the following ambiguous statement:

> The holy, ecumenical and general council . . . ascertains that this truth [of salvation] and rule [of conduct], which were received by the apostles from the mouth of Christ himself or were delivered by the apostles themselves at the inspiration of the Holy Spirit and have reached us as if they were transmitted from hand to hand [*quasi per manus traditae*], are contained in written books and in unwritten traditions [*sine scripto traditionibus*] . . . the council accepts and venerates with a feeling of equal piety and reverence all the books of both the old and the new Testament . . . and also the traditions concerning both faith and conduct . . . that have been preserved in an unbroken sequence in the catholic church. (Tanner 1990: II 663)[6]

This endorsement of two sources of revelation left undecided the issue of whether the whole of revelation was contained in each of them separately, or partly in each one, or whether it was wholly in one and partly in the other.

Trent also decided that the Catholic Church had exclusive authority to interpret the revelation that was found in either the Bible or tradition and, against Luther, that individual Christians lacked competence to interpret it.

> No one, relying on his personal judgment in matters of faith and morals . . . shall dare to interpret the sacred scriptures either by twisting its text to his individual meaning in opposition to that which has been and is held by holy mother church, whose function is to pass judgment on the true meaning and interpretation of the sacred scriptures, or by giving it meanings contrary to the unanimous consent of the fathers . . . (Tanner 1990: II, 664)

Here, then, was one of the fundamental sources of disagreement between French philosophers who accepted the certainty of revelation: they disagreed radically about where they could find divine revelation and, secondly, about who was competent to interpret even the biblical writings that they both accepted.

The reformers' understanding of the exclusively biblical source of revelation was summarized accurately by one of the most acute critics of the Tridentine decisions,

[6] I have amended Tanner's translation to avoid its suggestion that 'written books and . . . unwritten traditions' were received by the apostles from the mouth of Christ himself.

Martin Chemnitz, who published a four-part assessment of the Council's work, *An Examination of the Council of Trent* (1565–73). Chemnitz reflected the unanimous opinion of reformed churches that the Bible is the only reliable source of divine revelation:

> it will be clear that sacred Scripture is the canon, norm, rule, foundation, and pillar of our whole faith, and that whatever should be accepted under this title and name as the doctrine of Christ and the apostles must be proved and confirmed from the Scripture; that, in religious controversies, everything should be tested and examined according to this norm so that the saying of Jerome remains valid: 'Whatever does not have authority from the Holy Scriptures may be rejected as easily as it may be approved.' This is the source of disagreement between the papists and us. (1609, 23b)[7]

Since Christian churches could not agree on where to find divine revelation, it was not surprising that they also failed to agree on how to interpret even those texts that they accepted as authentic. One of the central issues was whether divine inspiration, however understood and efficaciously implemented in biblical texts, should be thought to apply to each sentence or phrase or, in some general way, to central doctrines that the texts revealed. This was a very sensitive issue because it potentially allowed readers to reject the literal meaning of specific texts without having an agreed criterion for distinguishing between what was essential and incidental. The problem was obliquely acknowledged in the first edition of the Jesuits' syllabus of studies, the *Ratio Studiorum*: 'It is more probable that the first copies and uncorrupted sources were all dictated individually by the Holy Spirit with regard to their substance, in different ways however according to the different conditions of the instruments' (Jesuits 1586, 323). That very modest concession was deleted in all subsequent editions of the text, but not before it had alluded to some of the questions that biblical exegetes had to address subsequently. It intimated that only texts in the original languages may have been inspired (rather than the Latin translation that Trent had adopted as its official text), that they may have been corrupted over time by generations of scribes, that readers may need to distinguish between core religious doctrines and incidental features in a text, and that God may have adapted the content of revelation to the sophistication and conceptual limitations of those who originally composed biblical texts.

It was almost a century before these issues were discussed in critical biblical studies. Although that work falls outside the chronological limits of this study, a brief summary may help identify some of the unresolved issues about the authority of the Bible that permeated French philosophy in the early modern period. Richard Simon (1638–1712) was one of the foremost innovators in critical biblical studies.[8] Simon suggested that only the original texts in which the Bible was written were inspired (Simon 1687, 14), and that 'inspiration' did not mean that God dictated every scriptural word

[7] Chemnitz often repeats the claim that Scripture is the exclusive rule of faith, and he repeatedly refers to St Jerome's principle (1609, 43a, 240a, 574b).

[8] See (Steinmann, 1960), Woodbridge (1989).

(Simon 1689, 61). Simon emphasized that the authors of biblical texts, including those who wrote the gospels, did not cease to be human beings in the course of composing their texts. He concluded, therefore, that it would be an obvious mistake to assume, when translating a biblical text, that individual words were inspired by God or that their meaning is unambiguous. Since most of those who claimed to interpret the Bible authoritatively for others did not know the biblical languages sufficiently well to understand the original inspired text (Simon 1687, 12), this Oratorian priest cast serious doubt on the credibility of Trent's decisions about the status and doctrinal authority of the Vulgate.

Jean le Clerc (1657–1736) provided a response to Simon's work that reflected the Protestant understanding of Scripture. Although he suspected that Simon was using his critical studies to support the traditional Catholic position that individual Christians were not competent to read and understand the Bible (and that they must therefore depend on a central teaching authority in Rome), he supported his main conclusions.

> People believe commonly two things which seem to be groundless . . . they believe, first, that the sacred historians were inspir'd with the things themselves; and next, that they were inspir'd also with the terms in which they have express'd them. In a word, that the holy history was dictated word for word by the Holy Spirit, and that the authors, whose names it bears, were no other than secretaries of that Spirit, who wrote exactly as it dictated. (1690, 30)

Le Clerc argued that the Scriptures should be read in the same way as any other book from ancient sources, and that their transmission to readers in later generations was no more or less reliable than in the case of similar ancient secular books. Christian beliefs in the early modern period, therefore, were based 'only on human reasons', although that should have been sufficient for mere mortals (1685, 336, 337).

In the decades prior to Simon's published work, some of the most famous disputes about interpreting the Bible concerned texts of which a literal reading seemed to conflict with what was known (or believed to have been known) by reason or experience. There were many examples of this challenge in early modern France, but two particularly acrimonious cases may suffice to illustrate some of the problems that philosophers addressed concerning the independent authority of revelation as a source of reliable beliefs. One was the apparent conflict between Copernicanism and biblical texts that were written as if the Earth were stationary and the Sun moved; the other was the compatability of the Tridentine interpretation of the biblical texts used in Eucharistic celebrations with what the sensory experiences of observers in normal conditions concluded about the bread and wine used in those religious rituals.

The book of Genesis had been recognized since the patristic period as particularly challenging for those who understood it as a history of how God created the universe, because it appeared to teach—if it were understood literally—that God created light on the first day and then created the sun, moon, and stars three days later. It also presented God as if he were an artisan who tired of the effort involved in creation and required a

rest on the seventh day. When Saint Augustine composed his commentary on Genesis, he acknowledged that Christians needed to interpret Genesis in a manner that would not conflict with what people knew about the universe in the fourth century:

> Usually, even a non-Christian knows something about the earth, the heavens, and the other elements of this world, about the motion and orbit of the stars and even their size and relative positions, about the predictable eclipses of the sun and moon, the cycles of the years and the seasons, about the kinds of animals, shrubs, stones, and so forth, and this knowledge he holds to as being certain from reason and experience. (1982, 42)

Augustine's primary concern was that the text of Genesis was difficult to interpret, and there were obvious places where it should not be understood literally—for example, as if 'day' meant twenty-four hours or God made light before the Sun and (the Earth's) moon were created. Given the uncertainty about the meaning of biblical passages, Augustine advised that it would be a fundamental mistake to project onto the text a meaning that derives from human ignorance rather than divine inspiration. If that occurred, non-Christians would readily conclude that, since Christians are so mistaken about facts that are widely known from experience and reason, they are equally mistaken about their religious beliefs:

> Now it is a disgraceful and dangerous thing for an infidel to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics … If they find a Christian mistaken in a field which they themselves know well and hear him maintaining foolish opinions about our books, how are they going to believe those books in matters concerning the resurrection of the dead, the hope of eternal life, and the kingdom of heaven, when they think their pages are full of falsehoods on facts which they themselves have learnt from experience and the light of reason? (1982, 42–3)

Augustine formulated a number of hermeneutic principles to avoid bringing the Scriptures into disrepute in that way. They included the following: (i) the Scriptures were written primarily to communicate a message about human salvation rather than to provide readers with natural knowledge;[9] (ii) their teaching was adapted to the understanding and modes of expression of their intended audience; (iii) a correct understanding of the Bible cannot be inconsistent with what is known by reason and experience. Augustine left unanswered the question of how certain, demonstrated, or 'proved' an opinion must be before exegetes would have to revise a biblical interpretation that is inconsistent with it (McMullin 2005, 90–9).

Since Augustine's commentary on Genesis was well known, it was not surprising that a Spanish Jesuit, Benito Pereyra (1535–1610), was still urging the same caution after the Council of Trent, in his *Four Books of Commentaries and Disputations concerning Genesis*. Pereyra provided four rules to assist biblical exegetes to avoid the danger about which Augustine had warned, namely projecting revisable scientific theories

[9] Galileo borrowed a version of this principle, apparently from Cardinal Baronius: 'the intention of the Holy Ghost is to teach us how one goes to heaven, not how heaven goes' (Drake 1957, 186).

onto the Scriptures and thereby undermining their credibility about religious doctrines (1607, 6b–8a). Peyeyra's fourth rule was as follows:

> One should also diligently guard against and completely avoid the following: when discussing the teachings of Moses, we should not think or say anything affirmatively and assertively that is contrary to the manifest experiences and arguments of philosophy or of other disciplines. Since every truth is always compatible with another truth, the truth of the sacred scriptures cannot be inconsistent with true arguments and experiences of human teachings. (Pereyra 1607, 8a)

Augustine and Pereyra had thus provided hermeneutic principles by which the apparent conflict between heliocentrism and the Bible could have been resolved and the infamous Galileo affair could have been avoided.

This notorious dispute resulted from a literal reading of various biblical passages that seemed to imply that the Sun moved around the earth. One of the main texts was Joshua 10:11–12, in which God was said to have suspended the motion of the Sun to assist the Israelites in battle; but there were other passages that assumed the immobility of the Earth (such as Psalm 104:5: the Lord 'laid the foundations of the earth, *that* it should not be removed for ever') or the motion of the Sun ('The sun also ariseth, and the sun goeth down, and hasteth to his place where he arose': Eccles. 1:5). Robert Bellarmine had expounded a conservative theory of biblical interpretation in *On Controversies*, which acknowledged at least five different kinds of meaning in biblical texts.[10] Bellarmine subdivided the 'literal' meaning of a text into two types. One was 'simple', which consists 'in the proper meanings of words'. In the second type of literal meaning, which he called 'figurative', 'words are transferred from their natural signification to another' (Blackwell 1991, 188). Thus the simple meaning of 'I have other sheep which are not of this fold' (John 10:16) refers to sheep, but the figurative meaning refers to people who do not belong to the Church (or to the inner circle of Jesus Christ) and who were invited to become members. Bellarmine's basic principle for interpreting the Bible, however, was that every sentence of the Bible has a literal meaning, on which other possible meanings depend: 'Of these meanings, the literal is found in every sentence of both the Old and New Testament' (Blackwell 1991, 189). Since Bellarmine also assumed that Copernicanism was merely an astronomical hypothesis, which was not certain because it was not 'demonstrated' in the Aristotelian sense of that term, he insisted on a literal interpretation of the relevant biblical passages until the truth of Copernicanism was demonstrated.

Galileo's response was partly to engage in biblical exegesis—which evidently breached Trent's ban on private individuals interpreting the Scriptures in a manner that was inconsistent with that of the Church. Nonetheless, in his *Letter to the Grand*

[10] The possible meanings were divided into two categories: (i) literal or historical, and (ii) spiritual or mystical. The former was subdivided into 'simple' and 'figurative', and the latter was subdivided into 'allegorical', 'tropological', and 'anagogical'. The relevant text of Bellarmine is translated in Blackwell (1991, 187–93).

Duchess Christina, the intrepid Galileo offered an interpretation of Genesis that was borrowed directly from Augustine and the fourth rule of Pereyra (Drake 1957, 186, 194, 206). Despite the skill with which he presented his case, the Holy Office decided in 1616 to censure as 'formally heretical' the proposition that 'the Sun is the centre of the world and is completely immobile by local motion' (Blackwell 1991, 122). Galileo was instructed not to publish anything further in support of Copernicanism and, when he published the *Dialogue Concerning the Two Chief World Systems* in 1632, his fate was sealed because he disobeyed a formal papal prohibition. That decision had a significant influence on French philosophers who shared Galileo's assessment of Copernicanism and wished to avoid a similar condemnation by Rome.[11]

The second example of an apparent conflict between the Bible and observational evidence originated from Trent's doctrine of the Eucharist. The Council taught that it was not inconsistent to believe that 'our Saviour sits permanently at the right of the Father in heaven according to his natural mode of existence' and that he is nonetheless 'sacramentally present to us by his substance in many other places' (Tanner: 1990 II, 694). Trent acknowledged that this mystery was such that 'we can hardly express it in words'. Despite that concession, the council expressed its faith in very specific words, namely in the scholastic language of substances: 'the conversion of the whole substance of the bread into the substance of the body of Christ our Lord, and of the whole substance of the wine into the substance of his blood… this conversion was suitably and properly called… transubstantiation' (Tanner 1990: II, 695).[12] The canons associated with this doctrine, in which Trent anathemized various alternative beliefs, insisted that 'the body and blood, together with the soul and divinity of our Lord Jesus Christ and therefore the whole Christ is truly, really, and substantially present' in the Eucharistic sacrament. Nor did the Church allow its members to accept some kind of joint presence of Christ together with the bread or wine; Trent rejected the suggestion that 'the substance of bread and wine remain in the Eucharistic sacrament together with the body and blood of Our Lord Jesus Christ'. After the conversion of the whole substance of bread and the whole substance of wine, there remain only the appearances (in Latin: *species*) of bread and wine, and the 'whole Christ' is present in either the consecrated bread or wine separately.

In contrast with the Galileo case, this doctrine illustrated one of the most fundamental issues that resulted from the Catholic Church's appeal to tradition: since the early centuries of Christianity, numerous councils had imported concepts from Greek philosophy to 'interpret' the Bible and had claimed, on behalf of those interpretations, the same revealed status as biblical texts. In that way, the official teaching of the Church

[11] For example, although Descartes was living in a remote part of the United Provinces (in Deventer) when he heard about Galileo's condemnation, he informed Mersenne that he had decided to suppress publication of his natural philosophy: 'I more or less decided to burn all my papers, or at least not to allow them to be seen by anyone' (I, 270–1).

[12] Armogathe (1977, 7) criticizes descriptions of this teaching as 'the dogma of transubstantiation' because the use of the term 'transubstantiation' is not a matter of faith. The Council, however, approved that title, in Session XIII, Chapter 4, as an appropriate name for its own doctrine.

had acquired a Trinitarian concept of God, a two-nature concept of Christ, and an extensive list of doctrines concerning the immortality of the human soul or mind, heaven, hell, and many accretions that reformers wished to modify or reject. In the case of the Eucharist, therefore, the primary locus of dispute was not the interpretation of a biblical text that included words attributed to Christ on the occasion of a unique historical event. It was the apparent contradiction between (i) what was naturally known about bread and wine when used in Christian ceremonies in the sixteenth century and (ii) Trent's interpretation, borrowed from scholastic philosophy, of the meaning of Math. 26:26 when used in Eucharistic celebrations.

The official teaching of the Council was uncompromising in its various expressions of what was implied by the 'real' presence of Christ in this sacrament and this was subsequently rephrased in the Council's *Catechism*, which described the Church's beliefs about the effects of sacramental consecration in three propositions:

> The first is that the true body of Jesus Christ, the same one that was born of a virgin and sits at the right of the Father in heaven, is contained in this sacrament. The second is that no substance of the elements [of bread and wine] remains in it, although that appears to be as remote as possible from what is perceived by the senses. The third—which can be inferred easily from the first two and is expressed so clearly by the words of consecration—is that the accidents [*accidentia*], which are seen by the eyes or perceived by the other senses, exist in some way miraculously and inexplicably without any subject. (*Catechismus* 1574, 181–2)

Although the Council's own decrees had refrained from speaking about 'accidents', this authoritative catechism translated its official teaching into a familiar version of scholastic philosophy, which provided one of the main sources of dispute for French philosophers in the following century.

Philosophical responses to apparent inconsistencies between the Bible and natural knowledge included three options. One, which Mersenne seems to have considered (Armogathe 1989, 52–3) was that the interpretation of the Bible and knowledge of the natural world were both uncertain, and that one must try to reconcile them without granting priority to either one. The second option was to trust in a literal understanding of biblical texts (or, for Catholics, in the Church's interpretation of them) and to reject any incompatible human knowledge. A third option, which Descartes favoured, was to prioritize human knowledge, even if it is uncertain, and to assume that the Bible may be understood in a way that is consistent with what is already known about the world.[13]

3.4 Conceiving God

The most fundamental Christian belief, for both Catholics and Calvinists, involved conceiving of God and assenting in some way to one's conception. Some of those who

[13] The suggestion that there are two 'truths'—one natural and one revealed—that have nothing in common was generally rejected in this period.

addressed this question oscillated between two different claims about the impossibility of conceiving God 'adequately'—either adequately to comprehend God's nature, or adequately to provide a basis for faith.[14] That raised the challenge of explaining how one could assent to any belief about God without conceiving, however inadequately, of what one believed.

Montaigne's scepticism inclined him to emphasize the inadequacy of human conceptions of the divine, without explaining why they were nonetheless adequate to express what he accepted as orthodox religious beliefs. He claimed to have avoided religious controversies by holding fast to the religion in which he had been reared. 'By God's grace…I have kept myself whole, within the ancient beliefs of our religion, through all the sects and schisms that our century has produced' (1991, 642).[15] He commented, in the *Essays*, on Sebond's *Natural Theology* that it was appropriate reading when 'the novelties of Luther were beginning to be esteemed' and were beginning to shake 'our old religion', and that it was possible to recognize, even then, that 'this disease would soon degenerate into loathsome atheism' (1991, 490). If the final phrase about atheism had been omitted, Montaigne's unwavering belief in the old religion could have been understood as a simple expression of fidelity to the familiar, in a context in which one religion is as credible as another. But Montaigne seems to have believed that one religious tradition was better than another and that it was appropriate to inquire about the truth of competing religious beliefs. At the same time, he disqualified human reason as an inappropriate criterion by which those issues could be addressed, and suggested instead that faith is a gift of God.

According to Montaigne, a mere human being—that 'pitiful, wretched creature' (1991, 502)—cannot possibly conceive of God by using natural reason. He repeated frequently the claim that it is vain and misguided to attempt to conceive of God by using concepts that are borrowed from human experience.

> What can be more vain…than trying to make guesses about God from human analogies and conjectures, which reduce *him* and the universe to our own scale and our own laws…
>
> Nothing of ours can be compared or associated with the Nature of God…without smudging and staining it with a degree of imperfection.
>
> We are far from honouring *him* who made us when we honour a creature we ourselves have made.
>
> In short…we forge for ourselves the attributes of God, taking ourselves as the correlative. What a model, what a pattern! Take human qualities and stretch them, raise them, magnify them as much as you please!…Men cannot conceive of God, so they base their conceptions on themselves instead. (1991, 572, 585, 593, 595) [italics added]

[14] Parish (2011, 64) introduces a discussion of 'Talking *about* God' in this period thus: 'Talking about God … is both possible and impossible.' Philosophers needed to explain both alternatives.

[15] Montaigne's personal religious faith is confirmed by the journal he kept during his travels in Italy in 1580–1, which were not intended for publication but appeared posthumously (Montaigne, 1774).

An alternative way of conceptualizing God, which he endorsed, was to think of God as 'some incomprehensible Power' (1991, 572) and to acknowledge the wisdom of the Athenians who honoured an 'unknown God'.

Unfortunately, Montaigne cannot implement this advice without contradicting himself. It is impossible to talk or write about God without some conception of what one discusses. Montaigne writes about God as 'he' and evidently conceives of God as a person whose properties exceed in every respect those features of human beings by analogy with which they are described. The only options, then, were not to talk about God at all or to use human concepts, despite their acknowledged inadequacy, to express religious beliefs.

Montaigne contrasts the incompetence of our natural cognitive faculties with faith as an alternative means by which one can gain access, however limited, to God. 'Only faith can embrace, with a lively certainty, the high mysteries of our religion' (1991, 492). The distinction between natural knowledge and faith is highlighted by a phrase that would have been worthy of Pascal (3.6 below)—to the effect that the apparent incredibility of a proposition is a sign that it is an appropriate object of religious belief. 'To come across something unbelievable is, for Christians, an opportunity to exercise belief; it is all the more reasonable precisely because it runs counter to human reason' (1991, 556). This kind of rhetorical flourish does nothing to explain what faith is, when it is appropriate to apply it, or whether there are any limits to what should be believed. Montaigne repeats what is effectively a religious meta-belief about faith: that human beings cannot exercise the appropriate degree of belief by using their natural cognitive faculties, because faith—that is, believing in a way that is conducive to salvation—is a gift from God which is not within the control of those to whom it is given.

> Whatever share in the knowledge of Truth we may have obtained, it has not been acquired by our own powers… the Christian faith is not something obtained by us; it is, purely and simply, a gift depending on the generosity of Another. (1991, 557)

This may be understood in two ways. In one, the epistemic state of a believer that is called faith is similar to ordinary belief in the reports of human witnesses, but it requires divine intervention in human history to provide the witnesses on whose testimony we rely. The alternative reading is that religious faith is not epistemically similar to other beliefs, and that we are not naturally capable of acquiring religious beliefs in the same manner as we acquire beliefs about foreign countries that we have not visited or historical events that we have not witnessed. On this second interpretation, the act of believing that is involved in religious faith requires not only divine revelation—which is allegedly reported in the Bible, and available for all to read—but it also requires an additional gift of grace from God before any individual believer can make the transition from hearing or reading God's word to believing it.

Montaigne's general comments about the cognitive status of acts of religious belief are qualified by the admission that human speech 'has its defects and weaknesses' and that 'most of the world's squabbles are occasioned by grammar'. In particular, religious

beliefs have to be expressed in human language and their expression is subject to the imperfections that characterize language generally. Montaigne concludes, with a pointed reference to post-Tridentine disputes about transubstantiation: 'How many quarrels, momentous quarrels, have arisen in this world because of doubts about the meaning of that single syllable *Hoc*' (1991, 590). '*Hoc*' [this] was the first word in the Latin translation of the phrase that was attributed to Jesus Christ at the last supper (Matt. 26:26) and, as used in the Tridentine theology of the Eucharist, it referred to what Reformed theologians classified as bread rather than the body of Christ.

Descartes offered an alternative and more traditional Thomistic analysis of how to conceive of God and other objects of religious belief by analogy, and of how faith compensates for the inadequacy of the evidence required to believe religious doctrines.[16] He insisted, in reply to Gassendi, that it is a necessary condition for believing in God that one conceive the content of one's belief:

> If one has no idea—that is, no perception—that corresponds to the meaning of the word 'God', it is no use saying that one believes that *God* exists; that is the same as saying that one believes that *nothing* exists, and hence one remains in the abyss of impiety and in extreme ignorance. (IX–1, 210)

Having an idea of God, however, did not imply having an adequate idea. Descartes distinguished between comprehending a reality and understanding it inadequately but sufficiently to believe that it exists. For, 'according to the true laws of logic, one should never ask about anything "does it exist" unless one first understands "what it is" '(VII 107–8). Accordingly, without explaining adequately what he meant by the distinction between different degrees of adequacy in our ideas, Descartes accepted that we cannot formulate an adequate idea of what is infinite or of God: 'the infinite, insofar as it is infinite, cannot be comprehended in any way [*nullo modo comprehendi*] but, nonetheless, it can still be understood [*intelligi*]' (VII 112); one could clearly and distinctly understand that something is such that it could not have any limitations.

The Cartesian concept of God was said to be innate, but that meant only that it was generated from other concepts that were innate. Descartes explained in the Third Meditation the appropriate method for acquiring a concept of God. He claimed there that we have a direct awareness of our own thinking and, therefore, that we have some idea of what thinking is. We also recognize that our thinking is subject to various limitations, and we can therefore construct an idea of God by conceiving of a kind of thinking entity that has no limitations. This graduated method for acquiring an idea of God was made explicit in reply to Hobbes's objections:

[16] When Descartes wrote to Huygens to offer condolences on the death of his wife (10 October 1642), he acknowledged the consolation provided by religious belief in an afterlife, and then added: 'although we wish to believe and even think we believe very strongly everything that religion teaches us, we are usually affected only by those doctrines when we are convinced by very persuasive natural reasons' (III 578). That suggests that religious faith needed support from reason and experience rather than the converse.

For who is there who does not perceive that there is something that they understand? Who therefore does not have the form or idea of understanding and, by extending this indefinitely, does not form the idea of God's understanding, and by a similar procedure an idea of the other attributes of God? (VII 188)

Descartes offered a similar analysis to Mersenne; 'the idea we have… of the divine intellect does not differ from the idea we have of the human intellect, except in the same way that the idea of an infinite number differs from the idea of a number to the power of two or four' (VII 137). Since the concept of God was generated by amending and adapting other available concepts, Descartes concluded that no one could deny having some idea of God except by denying that they understand 'the meaning of the most commonly used words' (IX–1, 209).

The idea that Descartes claimed to have acquired in this way was that of an 'infinite substance, which is independent, supremely intelligent, and supremely powerful, and by which… everything that exists' was created (VII, 45). He could have substituted the more familiar concept of 'thing' for the concept of a 'substance' in this definition, since he denied that we could have any concept of a particular substance except by knowing its properties. His concept of God, therefore, was defined by familiar properties—such as intelligence, power, etc.—which were then elevated to an infinite or unlimited status.

Descartes returned to this theme towards the end of his life in correspondence with Henry More, in a text that was discussed above in 2.6 in relation to the relativity of logical rules to the kind of intellect with which human beings are equipped. Descartes told More that our concept of God is determined by what we are able to conceive rather than by the nature of what we conceive, and while 'our mind is not the measure of things or of truth, it certainly should be the measure of whatever we affirm or deny' (V 274: M 172). God may be so different from our concept of God that he can even do things that we think are logically impossible; but we have no other option except to work with the limited intellectual resources with which nature has endowed us and to acknowledge their limitations even while using them as best we can.

Finally, Descartes used the same method of using concepts that are available to all competent users of the language to generate a sufficiently informative concept even of mysteries, such as the Trinity, and thereby to provide mysteries with a minimally adequate content in which they could believe. He acknowledged that the idea of the Trinity was not innate, but 'the elements and rudiments of the idea are innate in us, since we have an innate idea of God, of the number three, and similar things' (V 165). The combination of those elements provided 'an adequate idea of the mystery of the Trinity' (V 165) that made it possible to believe in a trinitarian God.

Having explained how a conception of God could be generated by analogy with the concept of a finite thinking subject, Descartes needed to address the question of how to avoid false judgements, which arise when one believes, erroneously, that one's ideas correspond to extra-mental realities. In the Fourth Meditation, he explained that error

arises because the scope of the will (to assent to propositions) is wider than that of the intellect, by which one assesses the evidence that supports a given proposition.[17] If the scholastic language of distinct faculties were translated out, that would amount to saying that we are capable of accepting a proposition as true even when we lack the evidence required to support it. 'Errors . . . result from this alone: since the will extends further than the understanding . . . I apply it even to things that I do not understand [*non intelligo*]' (VII 58: M 48). To avoid error, therefore, one should avoid assenting to anything that is not understood sufficiently clearly and distinctly (*satis clare & distincte*) (VII 59: M 49).

Descartes also added a very significant qualification to the thesis that judgements involve an act of the will; to the extent that the relevant evidence is clear and distinct, the potential believer is not indifferent about believing something. For example, as soon as Descartes realized that merely thinking about his existence confirmed that he existed, 'a strong inclination of the will followed from a great light in the understanding and, as a result, I believed it much more spontaneously and freely insofar as I was less indifferent to it' (VII 59: M 48). He had rejected the suggestion that, in order to be free, one must be indifferent about choosing what is true or good. He argued, instead, that he was more free when his choice about the truth or goodness of something was limited, when 'I clearly recognize it as being true or good or because God so disposes my innermost thoughts' (VII 57–8: M 47). This provoked a predictable objection in the Second Objections that Mersenne had gathered from his friends, at least some of whom were theologians.

The objection was that almost no religious belief has the kind of clarity and distinctness that Descartes seemed to require to make assent reasonable. Therefore, if non-Christians applied that criterion, they would be misguided to believe religious doctrines that are presented to them as mysteries because, by definition, they cannot be understood clearly and distinctly. Descartes's reply distinguished between the obscurity of the content of a given religious belief and the lack of obscurity of the reasons that justify assent—between what he called the 'matter or thing itself' that is believed and the 'formal reason' that motivates the believer to assent (VII 147). He acknowledged that the former may be obscure even when the latter is sufficiently compelling to justify belief.

> Although it is commonly said that faith is about obscure things, that applies only to the object or subject-matter to which faith is applied; it is not the case that the formal reason because of which we assent to matters of faith is obscure. For this formal reason consists in a certain internal light by which, illuminated supernaturally by God, we are confident that those things that are proposed for belief were revealed by him and that it is obviously impossible for him to lie—something that is more certain than any natural light and often even more evident because of the light of grace. (VII 148)

[17] This is discussed in detail in Kambouchner (2008, 253–90).

There is no doubt that, in this text, Descartes distinguishes two distinct ways in which one may become convinced of the truth of a given proposition. 'The clarity or perspicuity by which our will may be moved to assent is twofold: one comes from the natural light and the other from divine grace' (VII 147–8). He rejects the suggestion that he failed to acknowledge this supernatural light of faith, because he had explicitly mentioned it in the text quoted above (VII 57–8). This supernatural illumination, which motivates potential believers to accept certain doctrinal propositions as true because they are believed to have been revealed by God, was then supposed to compensate for the acknowledged obscurity ('*quamvis obscura*': VII 148) of what they are expected to believe.

Descartes offered no commentary on the status of the supernatural grace that compensates or substitutes for what would otherwise be required as evidence to support beliefs. In his reply to Regius's *Manifesto* in 1648, he distinguished between three kinds of proposition: some are believed on faith alone, such as the mysteries of the Incarnation and the Trinity; some pertain to faith, although they may also be investigated by natural reason, such as God's existence; and others have nothing to do with faith and fall squarely within the competence of reason.[18] Descartes commented that he had never heard of anyone accepting that things may be otherwise than as taught by the Scriptures unless, thereby, they implicitly rejected the Bible's authority. But he also added that, since we were human before we were Christian, 'it is not credible that, in order to cling to the faith that makes them a Christian, someone would seriously adopt views that they believe are inconsistent with the right reason that makes them human' (VIII–2, 354: M 192).

The issue that Descartes avoids addressing—because he was not a theologian and claimed therefore to lack competence to do so—is how to interpret biblical passages that are apparently inconsistent with what is known by experience or natural reason. He seems to have assumed that a literal reading of biblical texts is required, and he may have inherited that view from his Jesuit teachers at La Flèche.[19] Nonetheless, Descartes's correspondence shows that he understood the Augustinian principles of biblical interpretation and appealed to them in defence of his own philosophy.

He wrote to Chanut (6 June 1647) that 'the story of Genesis was written for human beings' and the Holy Spirit did not speak about anything in that text 'except in relation to human beings' (V 54). He also clarified that the objective of the Bible was to teach human beings about religious truths that were relevant to their salvation, and that using it to decide questions in the human sciences would amount to abuse:

> I believe that one applies Holy Scripture to a purpose for which God did not give it and, consequently, that one abuses it if one attempts to derive from it knowledge of truths that belong only to the human sciences, which are useless for our salvation. (II 148)

[18] In an apparent reference to the Galileo controversy, Descartes comments that it would be an abuse of the words of Scripture to believe that one could derive the third kind of knowledge from a 'faulty explanation of Scripture' (VIII–2, 353: M 192).

[19] Carraud (1989, 282–8) summarizes the evidence for that view.

Despite his reluctance to engage in biblical hermeneutics, however, Descartes identified one misguided way of reading biblical texts, namely by imposing scholastic philosophy on the text and then using the Bible as a weapon with which to attack those who hold different philosophical theories (especially in natural philosophy).

> I did not wish to remain silent about that [transubstantiation], so that I can fight with their own weapons those who mix Aristotle with the Bible and wish to abuse the Church's authority to express their passions—I mean those who had Galileo condemned and, if they were able to do so, would have my views condemned too in the same way. (III 249–50)

That was a recurring theme in Descartes: that 'monks' contaminated the simple words of the Bible with scholastic categories in such a way that theologians denigrate each other in insoluble disputes and open the door to every kind of religious sect and heresy (V 176).

Finally, Descartes acknowledged in the Second Replies that there were two ways of speaking (*modus loquendi*) about God, one of which is 'adapted to the understanding of ordinary people' and contains truths only insofar as they relate to human beings; this is the mode of expression that is usually used in the Scriptures (VII 142). He suggested that the Genesis story of creation may have been 'metaphorical' (V 169)—and therefore would fall within theologians' competence—and that the apparent incompatibility of some passages in Scripture with astronomical theories results only from the 'manner of speaking' (*la façon de parler*) adopted by the biblical authors (V 550). Descartes applied that analysis to disputes about transubstantiation, which is discussed in 3.5.

3.5 Transubstantiation: Descartes and Amyraut

The theology of the Eucharist was the focus of intense disagreement between philosophers who were members of the Catholic Church and the Reformed Church in France. Calvin had reduced the number of sacraments from seven to two, Baptism and the Eucharist, and had understood the presence of Christ in Eucharistic celebrations as symbolic or sacramental (which differed fundamentally from the way he conceived of God's presence in heaven). For reformed theologians, therefore, the Tridentine teaching that the 'substance' of Christ was 'really' present in the Eucharist was not only incomprehensible, because it assumed that the same reality could be present simultaneously in thousands of different places; it also seemed to them to be inconsistent with the most basic and incontrovertible evidence of the senses.

Descartes acknowledged, as early as 1630, that the work he had done on light and optics would require him to explain how the 'white colour of bread remains in the Blessed Sacrament' (I 179). That remained as an unexplored concern for Cartesian natural philosophy until Antoine Arnauld commented, at the end of the Fourth Objections, that it was the one issue that was most likely to cause

offence to theologians.[20] In his full reply, Descartes referred to Trent's official teaching and claimed that, as far as he knew, the Church had never taught that the 'species' of bread and wine that remain in the sacrament of the Eucharist 'are some kind of real accidents, which subsist miraculously on their own when the substance in which they inhered has been removed' (VII 252).[21] Descartes promised to explain how the conversion that Trent taught was consistent with his natural philosophy and predicted that the scholastic theory of real accidents would eventually be rejected by theologians as 'unreasonable, incomprehensible, and unsafe to the faith' (VII, 255). The reason given was that the scholastic theory was incoherent; it converted accidents into substances by assuming that they could exist independently. Descartes's preferred solution, which he claimed would remove all the difficulties associated with this doctrine, was to relate all our sensory perceptions to the surfaces of the bread and wine, to define the type of reality that surfaces have as nothing more than modal, and then to assume that God could miraculously substitute one substance for another in such a way that the substituting substance supports the modal features of the substituted substance. This theory was as incomprehensible as that of the scholastics, however, because it assumed that the body of Christ could be present within the modal 'surfaces' that are normally associated with bread or wine.

Descartes returned to this issue when a sympathetic Jesuit correspondent, Denis Mesland, asked him to comment on the Tridentine doctrine. He was initially reluctant to discuss his solution further: 'it is not up to me to explain how one can conceive that the body of Jesus Christ is present in the Holy Sacrament' (IV 165) and he quoted in defence of his diffidence Trent's acknowledgement that 'we can hardly express in words' the kind of existence that it claimed for Christ's presence. Nonetheless, he later relented and offered an alternative interpretation to that proposed by scholastic philosophers. 'I shall risk telling you in confidence a way of . . . avoiding the slander of heretics [i.e. Calvinists] who object to us that we believe, in this matter, something that is completely incomprehensible and implies a contradiction' (IV 165).

Descartes acknowledged that the matter that composes a given body may change over time, as the matter of a human body is replaced gradually by nutrition and yet remains the same body. One might even describe the matter that we eat and drink as being transformed, by a kind of transubstantiation, into a distinct human substance. In that case, the new identity of the nutrients depends on the fact that they are united with a distinct soul, the identity of which over time provides an unchanging identity for a human body. In a similar way, one might understand Trent's teaching about the Eucharist as the transformation of bread and wine by a spiritual union with Christ, although the bread and wine continue to have the same observable properties as they had previously.

[20] Mersenne abbreviated this objection in the first edition of the *Meditations*, but Descartes restored it together with his own full reply in the second edition (VII 248–56).

[21] See above (3.3) where the theory of accidents was used in the official *Catechism of the Council of Trent*.

> The whole miracle of transubstantiation . . . consists in this . . . that the soul [of Christ] informs the particles of bread and wine . . . by the power of the words of consecration . . . This explication will no doubt initially shock those who are used to believing that, in order for the body of Jesus Christ to be present in the Eucharist, it is necessary for all parts of his body to be there with their same quantity and shape . . . nothing like that has been decided by the Church . . . the soul of Jesus Christ informs the matter of the host. (IV 168–9)

This was a deeply problematic solution for anyone, like Descartes, who had rejected the theory of forms and substances on which it relied. Theologians also objected that it conflicted with Trent's teaching, which interpreted the so-called 'real presence' in more familiar terms as Christ's body being present on the altar rather than being spiritually present in other bodies (bread and wine) that retained all their usual observable properties.

Descartes returned to this question in a subsequent letter to an unidentified correspondent in 1646, in which he used the scholastic term 'accidents':

> There are two principal questions pertaining to this mystery. One is how it can happen that all the accidents [French: *accidens*] of the bread remain in some place where the bread is no longer present and there is a different body in its place. The other question is how the body of Jesus Christ can be present under the same dimensions as the bread. (IV 374–5)

Descartes had rejected the scholastic idea that the observable features of a body could be detached from an underlying substance and could be artificially attached to a different substance. On this occasion, however, he declined to make explicit the implications of his theory of matter, possibly because he was mindful of the threat of excommunication. The second question was just as dangerous. He acknowledged that 'the differences in names that have been given to substances result only from the fact that different observable properties have been noticed in them' (IV 375). Accordingly, anything that has all the usual properties of bread should be called 'bread'. But calling something 'bread' because it looks like bread was not merely a linguistic convention. Descartes had consistently defended the thesis that we know nothing about so-called substances apart from their properties and that there was no such thing in reality as a substance without its properties. The properties of bread are the only possible evidence, in Cartesian natural philosophy, for the presence of the 'substance' of bread. For that reason, his irenic ambitions to rescue the doctrine of transubstantiation from the charge of irrationality were doomed to failure, because theologians understood him as saying that bread was still present on the altar after the consecration.

One might ask: why did Descartes think that the Tridentine doctrine of the Eucharist was incompatible with 'reason' rather than with the philosophical theory of matter that he adopted? Theologians who defended Trent's formulation could have challenged the assumed warrant of Descartes's theory and might have referred to Cicero's comment that 'nothing can be so absurd that it is not proposed by some philosopher'

(1923, II, 119).[22] This merely highlights the extent to which both sides were disputing philosophical theories as being more or less appropriate to interpret the meaning of a scriptural text that was being used, sixteen centuries after its original composition, in a liturgical celebration.

Descartes's attempts to provide an account of bodies and their observable properties that could accommodate the Tridentine doctrine of the Eucharist were subsequently developed by the Benedictine monk, Dom Robert Desgabets (1610–78). Desgabets accepted the general principle that 'since God is the author of the two lights of the faith and of natural reason, he is perfectly consistent with himself' (Grazia and Sina 2013, 3). To reconcile these two sources of truth and to retain the Cartesian principle that the properties of a body cannot exist independently of the substance of which they are mere modes, Desgabets suggested that transubstantiation should be understood as the union of Christ, as a scholastic form, with the bread and wine. Since it is the form of any entity that determines what it is—*forma dat esse rei*—the bread loses none of its properties but acquires a new status as the 'body' of Christ because it is informed by the form of Christ (Grazia and Sina 2013, 21). This was a significant departure from how theologians had understood the doctrine at Trent and, as a result, Desgabets was ordered to desist from further publication or teaching about the Eucharist (Lemaire 1902, 51).

The moderate Calvinist response to the Tridentine doctrine was, simply, that it conflicted with what is naturally known about bread and wine and therefore involved a misunderstanding of the Bible. John Cameron (*c.*1579–1625) was a representative exponent of this interpretation, which was characteristic of the theologians of the Saumur Academy and appeared in the posthumous publication of his *Seven Sermons on Chapter Six of the Gospel according to St. John* (1633). Cameron noted that the gospels require Christians not only to believe revealed truths but also to do certain things. For example, in John 6:53–6, Jesus commanded his disciples to eat his flesh and drink his blood as a necessary condition for gaining 'eternal life'. In contrast with other biblical texts, therefore, that one could believe without understanding how the facts they report occurred—e.g. that God created the world—this text required Christians to understand it sufficiently to implement it. 'But how is it possible to implement this means, if we do not know it?' (1633, 63). Cameron concluded that the kind of 'eating' required was spiritual, since the nourishment that effected a spiritual union with God must also be spiritual (1633, 74).

Cameron's interpretation of these texts relied on a number of factors: the reliability of our senses with respect to their proper objects, the requirement that we understand biblical texts that require implementation, and a preference for a spiritual or metaphorical interpretation of texts that otherwise conflict with what seems rationally

[22] Descartes used a version of this conclusion in the *Discourse on Method*: 'I learned that there is nothing one could imagine which is so strange and incredible that it was not said by some philosopher' (VI 16: D 14).

credible—for example, the familiar metaphor that God is a 'shepherd'. All these epistemological and hermeneutic principles were adapted by one of Cameron's successors at Saumur, Moïse Amyraut*.

Amyraut argued that human beings are distinguished from animals by the faculty of reason, and since we were rational before we were Christian, the most fundamental law of all is that of nature or reason. Our natural beliefs precede those of the faith (1647, 15, 46–7). He had discussed the competing authority of reason and faith in an earlier book, *The Elevation of Faith and the Depression of Reason* (1641), in which faith and reason were compared with weights on either side of a balance so that, if one is raised, the other side is lowered. The doctrine of transubstantiation provided a good example of this. If Christians had to accept that teaching on faith, it would force them to reduce their trust in reason. Amyraut argued, on the contrary, that faith and reason are complementary.

Amyraut explained that there are some truths—for example, that God exists and governs the world by his providence—that are accessible in principle to reason but are illuminated and clarified by faith. There are other beliefs that cannot be comprehended (*comprises*) by reason, of which there are two kinds. One type of incomprehensible belief includes those that 'are beyond reason but at the same time do not destroy reason' (1641, 51); these include beliefs about the Trinity and the Incarnation. Both are such, in his view, that we can at least understand what is proposed for assent. The other type of incomprehensible belief includes those 'which are contrary to reason' (1641, 62–3). They are doctrines that 'are not just above reason but directly contrary to it', and are such that they also fall within the range of things that we understand adequately. These doctrines invite belief in 'something against which our reason provides arguments which are so strong and so evidently correct that, in order not to follow reason, one must renounce nature itself' (1641, 76–7). According to Amyraut, Trent's teaching fell into this category so clearly that 'the Church does not have the authority to command us to believe in transubstantiation against the judgement of reason' (1641, 237).

The Reformed theologians were conscious of the objection that they were engaged in a philosophical dispute and, therefore, that their arguments were no more compelling than those of their theological adversaries. Their reply, however, was that they were using the evidence of their senses to reject an implausible interpretation of a biblical text. Amyraut distinguished between the literal sense (*signification propre*) of a biblical text and its metaphorical meaning (*signification figurée*) and concluded that the evidence of one's senses demands that one adopt a metaphorical interpretation of Christ's injunction to his disciples that they 'eat' his body. This was made more explicit in the anonymous *Physical Reflections on Transubstantiation* (Anon. 1675), which was written in reply to Jacques Rohault (1618–72)—possibly by Elie Richard.

Rohault had proposed a slightly amended version of Descartes's theory, by emphasizing that the features of bread and wine on which we rely to identify them as such are secondary qualities. Thus it would be possible by divine power for bread and wine to be replaced by the body and blood of Christ, even though observers would continue to

perceive the secondary qualities of bread and wine. Without detaching the properties of bread and wine from their corresponding substances, however, which was impossible on Descartes's theory of matter, Rohault suggested that one could have deceptive sensory experiences of bread and wine even when the relevant substances had been transformed (1978, 120).

In reponse, *Physical Reflections* argued that whether or not one body could change into another was a question for physical theory and, since that was uncertain, one could not conclude that such a change is impossible (1675, 6). But the Calvinist argument was not that transubstantiation is impossible because it conflicts with physical theory, but that it involves a contradiction that undermines the most basic axioms of reason:

> The axioms on which I rely to show that transubstantiation is a dogma that implies a contradiction are not the simple principles of physics; but they are axioms of eternal truth that one cannot doubt without quenching all the light of reason. For example, when I say that a round and flat host cannot be the body of a man, which is neither round nor flat, and when I emphasise all those other contradictions…I rely on this axiom: that a thing cannot both be and not be at the same time. (1675, 33–4)

This summarizes the principle on which Calvinist theologians relied to reject the Tridentine doctrine of the Eucharist. There are objects of knowledge that fall naturally within the scope of reason or the senses, and these constitute a negative criterion by which to limit what the Scriptures require Christians to believe. Given that the Bible is so difficult to interpret, as Augustine had argued, one should adopt an interpretation that is at least consistent with what is known empirically about the natural world.

Another Calvinist commentator, François Poulain de la Barre*, endorsed the same resolution in *The Protestants' Doctrine of Freedom to Read the Scriptures*, in which he argued that the biblical text 'This is my body' should be understood only 'metaphorically, and not at all in a literal or standard manner' (1720, xli). Poulain distinguished three possible guides for interpreting the words by which Christ instituted the Eucharist: tradition, the authority of the Church, or reason, and he recommended the last option, which he explained as follows:

> The way of reasoning or of criticism consists in this: that each person who is zealous for salutary truths and who combines, without prejudice or scruple, the light of others with their own, examines Holy Scripture with the care and attention it deserves and takes as the true meaning—for example, of these words, 'This is my Body'—whatever seems to be the correct one, after having examined them as it were before God and without any fear of men. (1720, 234)

Poulain recommended that Christians read the Bible as they would any other book, that they try to identify the meaning that its authors intended, and that they not impose on any text a prejudicial reading that may have been borrowed from some other source, such as tradition or the authority of a church (1720, 274–5). One's only reliable guide in this exercise is right reason ('*la droite raison*'). If Scripture appears to teach something

that is inconsistent with reason—for example, that God has certain bodily members—one should reject that reading because, since God is a pure spirit, the idea that he has bodily parts 'cannot be compatible in the mind of anyone who is sincere, attentive, and who reasons' (1720, 274).

The epistemic priority attributed to reason and experience by Descartes and by Huguenot theologians of the Saumur Academy was the subject of renewed criticism by Blaise Pascal who, like Montaigne, appealed to sceptical arguments against the reliability of our cognitive faculties and to a theological concept of faith.

3.6 Pascal: Wagering for Faith

Blaise Pascal published no philosophical works during his relatively short lifetime. Nor was he educated in the standard curriculum of French colleges or in the theology of the Catholic Church; he never attended any school but was tutored at home by his father, Étienne, who was a distinguished mathematician. Apart from posthumous editions of draft texts, his published work concerned exclusively the explanation of barometric pressure and the theological controversies involved in the *Provincial Letters*. Pascal was introduced to the theology of Cornelius Jansen in 1646 by two brothers whose charitable work was inspired by Jansen's *Discourse on the Reformation of the Inner Man* and who had nursed his father, Étienne Pascal, following a disabling accident. This initial and indirect encounter with Jansen's theology did not, however, result in a religious conversion. That occurred eight years later, when Pascal had a dreamlike or ecstatic experience on the night of 23/24 November 1654. He composed a description of this experience in a brief document, the *Memorial*, which he sewed into his coat and carried on his person until his death in 1662. This religious experience convinced Pascal to reduce his work in mathematics and physics and to focus attention on religious controversies that involved his friend, Antoine Arnauld, and Jansen's theology of grace.

During this period, Pascal became a trenchant critic of what he classified as the lax moral theory of the Jesuits and a polemical advocate of Jansenism; he developed both positions in the *Provincial Letters*, which appeared anonymously between January 1656 and March 1657. He also drafted a number of other theological works, and began to gather notes with a view to writing a defence of the Catholic religion. These preparatory notes were written consecutively on large sheets of paper, and separated from each other with horizontal lines. Pascal subsequently cut these sheets into strips at the dividing lines and collected related notes into thematic bundles (*liasses*), for each of which he also provided a tentative title. Following his death, however, the bundles of notes became dissociated, and their author had not provided any numbering system by which the order in which he composed or planned to use them might be determined. An edited version of Pascal's jottings appeared in 1670 (eight years after his death) as *The Thoughts of Mr Pascal about Religion and Some Other Subjects*, which is usually identified by the first word of the French title, *Pensées*. Subsequent editors

attempted to reconstruct the order in which Pascal composed or planned to use these notes, and most modern editions of his works provide a concordance with which readers can compare the significantly different numbering systems adopted by different editors.[23]

The composition, scattering, and posthumous editing of the *Pensées*, and the epigrammatical style in which many of the notes were written, imply that one must be cautious about assuming that Pascal asserted or believed the apparent implications of every note that he wrote. In some cases, he may have been simply gathering ideas to which he hoped to return or even recording claims by other authors that he intended to question or reject. This is particularly relevant to his comments about religious belief, although some of them are confirmed by other writings and are sufficiently consistent over time to speculate confidently about his understanding of faith and reason.

Jansen's work provided Pascal with the negative assessment of the value of human knowledge that dominated the final years of his life, following his religious conversion. Jansen had written a commentary on I John 2:16, in the course of which he suggested that 'all that is of this world is the concupiscence of the flesh' and that the desire for knowledge was one such form of concupiscence. From that illness 'arises the investigation of nature's secrets (which are irrelevant to us), knowledge of which is useless, and which men do not wish to know except for the sake of knowing them' (2004, 24). It appears as if Pascal became convinced, at that point in his life, that the only meaningful activity for him was to pursue the kind of religious life that Jansenism recommended. This is reported by his brother-in-law, Florin Périer, in the Preface to the posthumous edition of *Treatises on the Equilibrium of Liquids and the Weight of the Mass of the Air*:

> Although he had as great a gift as any man who ever lived for penetrating into the secrets of nature…he had so thoroughly realized for more than ten years before his death the vanity and the emptiness of all such knowledge, and had conceived such a distaste for it, that he could hardly suffer people of intellect to make it their study or the subject of their serious conversation. (1973, ix)

Pascal's numerous reflections on the misery of human existence, the depth of human ignorance about the most important religious truths, and the vanity of philosophical inquiries belong to this period in which he appears to have been suffering from depression and extreme anxiety about death and the afterlife.[24] During that time, he wrote: 'we do not believe the whole of philosophy to be worth one hour's effort' (Fr. 118/77: II,

[23] There are four principal versions of the *Pensées*, those of Brunschvicg (1904), Sellier (1976), Lafuma (1952) and Le Guern (1998–2000). I quote the English translation of the *Pensées* (Pascal 1995), which used the Sellier numbering of the fragments, and I include two fragment (Fr.) numbers for each quotation, Sellier/Le Guern, and the page reference in Pascal (1998–2000). Unless otherwise indicated, I translate other quotations from the two-volume Le Guern edition of Pascal's works (1998–2000), by indicating the volume and page number.

[24] Cole (1995) hypothesizes that Pascal's numerous illnesses throughout his entire life were due partly to an affective disorder.

566), and 'To have no time for [*se moquer de*] philosophy is truly to philosophize' (Fr. 671/467: II, 744).

Pascal's aphoristic and combative style and his penchant for paradoxical expressions inclined him to contrast one opinion with another as stark disjunctives. The apparent opposition of faith and reason was an appropriate subject for that potentially misleading style of argument. He borrowed extensively from Montaigne's *Essays* to emphasize the limitations of human knowledge and the inconceivability of God. 'Montaigne is incomparable . . . for disabusing those who cling to their opinions and who believe that they have found unshakeable truths in the sciences' (II, 97). But, in keeping with his disjunctive style, he contrasted the uncertainty of human knowledge with the certainty that he claimed for faith.

> The main strengths of the Pyrrhonists . . . are that we can be in no way sure of the truths of these [natural] principles, apart from faith and revelation . . . since none of us can be certain, apart from faith, whether we are awake or asleep . . . (Fr. 164/122: II, 579)

In fact, Pascal had little sympathy with the general scepticism about sensory knowledge that was characteristic of Pyrrhonists. He argued with conviction in the *Provincial Letters* that we learn the truth about facts 'from our eyes . . . which are the appropriate judges of fact, as reason is of natural and intelligible things, and the faith is of things that are supernatural and revealed' (I, 810). This coincides with a fragment of the *Pensées*, in which Pascal acknowledged that sensory perception is reliable and that one is not expected to believe what is inconsistent with it: 'the faith does indeed say what the senses do not say, but not the opposite of what they see. It is above them rather than against them' (Fr. 217/174: II, 604). Apart from faith, which is appropriate only to religious truths, he claimed in his *Treatise on the Vacuum* that 'experience and reason' (I, 454) are the only reliable ways of acquiring knowledge of the natural world.

Without assuming a general scepticism about reason or experience, therefore, Pascal proposed a number of theses about religious faith—about its content, and about how it occurs in the mind or 'heart' of a Christian (because, in the case of other religions, the explanation of its occurrence differs). His main thesis about the content of beliefs was the familiar claim that it is mysterious. Pascal held a general thesis that proofs of God's existence were useless, although the reasons for holding that seemed to range over a number of his more specific objections to the conceivability of God, to the rationality of religious beliefs, and to the inefficacy for salvation of a rational belief in God (even if it were possible). This general thesis is summarized as follows in the *Pensées*: 'The metaphysical proofs of God are so far removed from man's reasoning, and so complicated, that they have little force' (Fr. 222/179: II, 605). One reason for this, he thought, was that God is not comprehensible to human understanding. 'If there is a God, he is infinitely incomprehensible . . . we are therefore incapable of knowing either what he is, or if he is' (Fr. 680/397: II, 677). In one sense, that is the same thesis about the limitations of human understanding that one finds in Aquinas, Montaigne, or Descartes.

Pascal's language, however, seems almost to celebrate the incomprehensibility of what is believed on faith. 'Incomprehensible that God should exist, and incomprehensible that he should not; . . . that original sin should exist, and that it should not' (Fr. 656/665: II, 816). Even if the content of religious beliefs transcended human beings' understanding, it would not follow that what Pascal wished to say about them would be equally incomprehensible. He therefore owes his readers an explanation of what he meant by claiming that religious truths are beyond our comprehension. 'If we submit everything to reason, our religion will contain nothing that is mysterious or supernatural. If we shock the principles of reason, our religion will be absurd and ridiculous' (Fr. 204/162: II, 602). That suggests that one's religion should not require belief in whatever is inconsistent with reason, although one's beliefs may be inaccessible to rational inquiry. Since Pascal offered no analysis or interpretation of what he meant by 'reason', he may have been (a) discussing whether human beings are capable of expressing the content of what they believed, or (b) denying that they can provide evidence for the veracity of their beliefs. Both questions need to be clarified.

Pascal appears to mean that it is impossible to express in human language the content of what Christians are expected to believe. Most of what he explains about his own religious beliefs, however, implies the exact opposite. At the most general level, Pascal thought about God and wrote about God as some kind of personal reality—which he calls 'he'—rather than an impersonal power that explains the existence of the universe. More specifically, he assumed that religious beliefs are true or false (in a correspondence sense) and claimed that no other religion was true, apart from the one that he accepted. 'I see several mutually inconsistent [*contraires*] religions, all of which are false with one exception' (Fr. 229/184: II, 608). He even reiterated, in the *Provincial Letters*, the traditional Catholic doctrine about the necessity of being a member of the Church, 'outside of which I am fully convinced there is no salvation' (I, 781). Pascal goes into much greater detail by specifying what he considered to be the only acceptable account of how God provides each individual with the assistance required for salvation. Thus in his *Writings on Grace* (II, 211–316), he rejected the theological view (which he attributed to Calvinists) that God had an absolute will to damn some people without reference to their merit. 'That is the appalling opinion of these heretics, injurious to God and unbearable for men' (II, 260).

In the same extensive writings about grace, Pascal rejected the theological opinion of Luis de Molina (1535–1600) because he thought it exaggerated the efficacy of human volition as a means to salvation. The rejection of Calvin and Molina, however, required Pascal to make further claims about what God could or could not do. Thus, 'God could not have created any human being with an absolute will to damn them', nor did he create anyone with an absolute will to save them (II, 287). Pascal's solution to the dilemma (of how to reconcile grace and free will) was to reject all theories of divine intervention except one, which assumed that Adam's sin 'corrupted' the whole of humanity and that 'all human beings in this corrupt mass are equally worthy of eternal death and of God's

anger' (II, 289). But the transmission of original sin itself is 'the mystery which is furthest from our understanding' (II, 581).

Since Pascal provided extensive and detailed speculations about what God could do in relation to human freedom, and about how God revealed himself in Christ and can be known only through Christ (Frs. 36, 221, 644/396, 178, 653: II, 675, 605, 807), he cannot consistently hold that human language is incapable of expressing any opinions about God. He may, therefore, have meant the less dramatic claim that some of the beliefs that Christians hold are not fully understood, in the same way that one may know about natural events that occur without being able to explain them. 'If natural things surpass it [reason], what will we say about supernatural things?' (Fr. 220/177: II, 605). In that case, Pascal may understand 'mysteries' as realities about which we are sufficiently informed to be able to conceptualize them—for otherwise, one lacks the minimal specificity required to believe one proposition rather than another—but that we do not understand them sufficiently to be able to explain how they are possible. Such an inadequate conceptualization would be enough to support belief, if the latter could be justified. That raises the second question—(b) above—about the status of religious belief.

In the preface to the *Treatise on the Vacuum,* Pascal rejected the authority of ancient authors as an inappropriate criterion by which to decide the specific issue in natural philosophy that his essay addressed (below, 4.5). When there is a question of simply knowing what certain authors wrote, however—for example, in history and especially in theology, which relies on divine institution—'one must necessarily have recourse to their books, because everything that can be known about such matters is contained in them' (I, 453). Pascal does not thereby provide any criterion by which to decide if what authors wrote was true or credible. The point was, simply, that one finds out what authors wrote by consulting their books. In the case of the Scriptures, therefore, none of the issues raised above—about the authenticity of books, the credibility of their reports, and the interpretation by ancient authors of the events that they reported—was addressed.[25]

Without discussing these questions, Pascal discussed the status of religious faith in *The Art of Persuasion*, which was published posthumously in 1728. This text identified two ways by which opinions are introduced into the 'soul': through the understanding or the will. The former describes the familiar means by which people assess the evidence that supports any given opinion; in that context, Pascal advised that one should consent only to 'demonstrated truths'. What he calls 'divine truths', however, are an exception to this epistemic criterion, since they are such that 'only God can put them into the soul' (II, 171). This reflects a theme that recurs frequently in Pascal's discussion of religious belief—that belief comes through the 'heart' rather than the mind,

[25] Wood (2013, 19) discusses Pascal's adoption of a literal interpretation of Adam's sin.

and that the relevant criteria for assessing it are completely different to those that apply to rational beliefs.[26]

> We know the truth not only by reason but also by the heart. . . . That is why those to whom God has granted religious faith [*la religion*] through a feeling of the heart [*sentiment du coeur*] are blessed and quite legitimately convinced. But we cannot give it to those who lack that conviction, unless we do so by reasoning, while they wait for God to provide them with it through a feeling of the heart without which faith is merely human and useless for salvation. (Fr. 142/101: II, 574)

Texts such as this require two stages of interpretation. The heart metaphor is not limited to so-called 'divine truths' but is meant to communicate the value that someone attaches to a particular belief. Pascal seems to remind readers that believers' reluctance to change a belief is proportional to the value they attach to it. Such beliefs may be familiar, natural beliefs—such as the goodwill of a friend. One is very slow to believe that a friend has deceived one, even when the evidence points towards that conclusion, because of the value of their friendship. In the case of religious beliefs, however, their significance for believers acquires an almost incalculable value, and that is one feature of the wager argument that is discussed below.

The second feature of Pascal's analysis of religious belief was that, in his view, it is impossible for any individual to acquire the kind of faith that is relevant to salvation by their own natural efforts—for example, by reading the Bible, evaluating the credibility of its narrations, etc. The only kind of belief that is relevant for salvation is the religious faith that comes as a gratuitous gift from God. 'Faith is a gift of God' (Fr. 487/501: II, 761).[27] According to Pascal, the faith that is relevant for salvation 'is not within our power as are the works of the law, and it is given to us in a different way' (Fr. 581/596: II, 788). In that case, however, it is impossible for individuals to assess the credibility of a particular religious faith by using their normal human faculties.

As indicated above, Pascal claimed that religious belief does not conflict with sensory evidence, and he made an equally unequivocal claim about the compatibility of faith and reason: 'one must begin by showing that religious faith [*la religion*] is not inconsistent with reason' (Fr. 46/10: II, 545). The famous texts concerning wagering about God's existence were Pascal's draft of such an argument. Given the condition of this text, which includes erasures and marginal additions on all sides of the original manuscript, it is not clear, even to sympathetic readers, what Pascal claimed. He cannot have been offering a proof of God's existence, since he thought such proofs were both impossible and irrelevant to leading a Christian life. Even when that option is excluded, however, it remains unclear and subject to dispute among commentators what Pascal was attempting to show. Since there is more than one distinct wager

[26] Perhaps the most frequently quoted text concerning the role of the 'heart' in acquiring beliefs is: 'The heart has its reasons which reason itself does not know: we know that through countless things' (Fr. 680/397: II, 679, note).

[27] 'Faith is different from proof. One is human, while the other is a gift of God' (Fr. 41/5: II, 545).

argument in this text of the *Pensées*, the following is usually accepted as a version of the main argument:

> There is an eternity of life and happiness. Since that is the case, even if there were an infinity of chances of which only one was favourable to you, you would still be right to wager one to gain two and you would be misguided—since you have to wager—if you refused to wager one life against three at a game in which, from an infinity of chances, there is one for you if it were possible to gain an infinitely long life of infinite happiness. But there is an infinitely long life of infinite happiness to be gained here, a chance to win against a finite number of chances to lose, and what you stake is finite. That removes all choice, whenever there is infinity, and where there is not an infinity of chances of losing against that of winning. There is nothing to calculate [or balance], one must risk everything. (Fr. 680/397: II, 678)

The wager arguments are enthymemes, and it is impossible to assess their validity without at least two additions: first, an interpretation of what the texts claim, and secondly, an explicit statement of implicit assumptions that give them the appearance of validity. The extensive literature on those topics makes any such effort here redundant.[28] Nonetheless, one should acknowledge the following features of the wager that may justify the option of simply mentioning, without examining, the conclusions of other commentators.

The kind of time-limited action suggested by the language of a wager—as if one were betting on some outcome at time t_1, and the decision to wager or not had to be made before the occurrence of events at a later time t_2, on the outcome of which one is betting—is irrelevant to belief in God. The only kind of belief that was relevant in Pascal's theology was one that is expressed over the life of the believer rather than at a particular time (though he may have thought that believing in the appropriate way prior to one's death was more important than at earlier stages of one's life). Secondly, according to Pascal's theology, no rational calculation of probabilities could have been conducive to salvation, except as a defensive protection against the objections of 'heretics' or atheists. Fundamentally, the kind of faith that Pascal required for salvation could have originated only with God rather than with rational thought, and it was entirely gratuitous on God's part to give or refuse this faith to particular individuals. Once this grace is 'diffused into the heart by the Holy Ghost', however, one's free will 'infallibly [*infailliblement*] chooses God's law simply because it finds greater satisfaction in it, and experiences in it its beatitude and happiness' (II, 289). One cannot wager oneself into what Pascal described as religious faith. One can do no more than accept the gift of faith if God provides it and, it seems, if God does provide sufficient grace to believe it is impossible to resist it.

Nonetheless, the wager might function even within this theological perspective to provide what Pascal needed, i.e., an argument to show that if individuals had been converted by divine grace, then continuing to believe would not be inconsistent with

[28] Hajek (2012) provides a comprehensive survey of alternative interpretations of the texts. See also Elster (2003), and the bibliographical sources listed in Clarke (2015).

reason.[29] But it probably fails (depending on which of its many possible interpretations one adopts), even in that limited role, because it needs to assign an infinite utility to one outcome (eternal happiness) and a probability greater than zero to the existence of God as conceived by Pascal. As many commentators have argued since the time of Diderot, Pascal's wager could be used with equal validity to defend the rationality of any conceivable system of belief in which (i) the believer attributes subjectively an infinite value to the possible outcome that they hope to realize and (ii) a greater than zero probability to its possible realization. 'An Iman could say the same thing just as much as Pascal' (Diderot 1875: I, 167). The rationality of continuing to believe is parasitic on the content of one's beliefs.

3.7 Conclusion

Barbey's phrase about holding 'the understanding captive' and Pascal's reference to the 'heart' having its own reasons allude to, without clarifying, one of the fundamental issues that required the attention of early modern French philosophy. The potentially evasive manoeuvre that the Bible and natural knowledge were incommensurable, i.e. they did not have enough in common to be mutually inconsistent, attracted little support. Most philosophical commentaries about faith and reason assumed a literal understanding of the Bible, and assumed that biblical texts report events and divine injunctions that should be understood realistically and literally. If God stopped the Sun in its tracks, then that was exactly what occurred; and if Jesus commanded his disciples to eat his body, then Christians should not baulk at the cannibalistic connotations of its literal implementation. Apparent conflicts of faith and reason, therefore, had to be resolved by modifying one member of every pair of propositions that were apparently incompatible.

Those authors who protected religious beliefs at the expense of natural knowledge failed to address most of the issues that were subsequently the focus of critical biblical studies, such as the authorship of biblical texts, their accurate transmission or corruption through centuries of copying, the way in which biblical language was understood when various books of the Bible were originally composed, and the most plausible way in which such texts might be said to have been divinely inspired. Many of these issues were avoided, temporarily, by claiming for religious belief or faith a status that put it beyond the reach of epistemic evaluation. This was a circular argument, however, because it relied on religious faith in the divine inspiration of Scripture to conclude that an act of faith is caused (in some way) by God rather than by any evidence that is accessible to human cognitive faculties. If one avoided that circle, then one had to address the implications of Hobbes's conclusion that the religious faith of early modern

[29] The wager makes no sense to someone who has not already adopted the religious assumptions from which Pascal begins (Parish, 2011, 91–2).

Christians relied ultimately on belief in the competence of other human beings to interpret events reliably and to report them honestly and accurately.

The alternative option was to trust the fallible results of human inquiries and to interpret the Scriptures—metaphorically or mystically, if necessary—so that they do not conflict with what is known about the natural world. This almost invariably resulted in condemnation by Christian churches and, in jurisdictions that enforced ecclesiastical decisions (including Geneva), to even more severe civil penalties for those who publicly espoused unorthodox opinions.

Wood (2013) has unintentionally identified the fundamental philosophical objection to any theory of religious belief that shares Pascal's analysis of original sin as a universal corruption of our cognitive faculties that results in human duplicity and self-deception. There is no conceivable human evidence that could falsify such an interpretation of the human condition. As an ideology, therefore, it generates the same false consciousness that it attributes to those who do not share Christians' belief that God granted them the gift of sufficient grace and the enlightenment that non-believers lack.

4

Natural Philosophy

'To ask me to provide geometrical demonstrations in a subject that depends on physics is to ask me to do the impossible.'[1]

4.1 Introduction

There were no significant developments in natural philosophy in France in the sixteenth century. Elsewhere in Europe, however, astronomers proposed one of the most revolutionary innovations in the history of science, which challenged not only previous theories but the very concept of what may count as a viable theory in natural philosophy. Copernicus's *On the Revolutions of the Celestial Spheres* (1543) initiated that revolution. Although very few people read the first edition—as Gingerich (2004) shows, based on a comprehensive review of extant copies—and although the Foreword written without the author's approval by Andreas Osiander was designed to undermine the realist implications of Copernicus's heliocentrism, this book set a new standard for technical or mathematical treatises in astronomy. It was followed in 1609 by Kepler's *New Astronomy* and, in 1632, by Galileo's *Dialogue Concerning the Two Chief World Systems* (Galileo 1970). The implications of these publications were so radical, not only for astronomy and biblical scholarship (3.3), but for scientific method in general, that they effectively changed our understanding of the natural world and initiated what was appropriately called a scientific revolution. This momentous transition in our understanding of the natural world was realized only by first confronting and rejecting a distinction that had been entrenched in the traditional concept of knowledge from the time of Aristotle.

Aristotle, following Plato, distinguished between 'opinions' or merely plausible beliefs and what he called demonstrated truths, and defined the concept of knowledge unhesitatingly in terms of the latter in the *Posterior Analytics*.[2] Scientific knowledge, according to this definition, is inferred by valid syllogisms from primitive propositions that are necessarily true and the result is called a 'demonstration'. The Aristotelian ideal of genuine knowledge was subsequently the subject of commentaries for almost two

[1] Descartes to Mersenne, 27 May 1638 (II 143–4).

[2] 'We think we understand a thing *simpliciter* (and not in the sophistic fashion accidentally) whenever we think we are aware both that the explanation because of which the object is is its explanation, and that it is not possible for this to be otherwise' (Aristotle 1984–5, 115).

thousand years. During that period, although the meaning of key terms may have been modified, the fundamental distinction between 'demonstrated' knowledge-claims and other uncertain opinions remained as unchallenged as it had originally appeared self-evident to Aristotle. During the early modern period, therefore, many natural philosophers struggled unsuccessfully with two incompatible convictions: (a) that it was impossible, without hypotheses, to construct scientific explanations of natural phenomena that were consistent with the new corpuscularian worldview, and (b) that if one deviated from Aristotle's definition of knowledge, it would breach a self-evident distinction between genuine knowledge and mere opinion. The combined effect of (a) and (b) was that hypothetical explanations were, by definition, not genuine knowledge and that the only way to avoid that conclusion was to reject the Aristotelian intuition on which it was based.

The history of astronomy up to the sixteenth century provided an unusually appropriate subject matter for an instrumentalist interpretation of science that was consistent with the Aristotelian concept of demonstration. The sheer complexity of the motions that were assigned to planets, which included epicyles and eccentric circles, when combined with the absence of any physical explanation of how planets might move in those apparent ways, made plausible the suggestion that the function of mathematical astronomy was to predict accurately the positions of planets, vis-à-vis observers, rather than to describe and explain the actual paths by which they reached those positions. Pierre Duhem (1969) summarized this history as the parallel development of two models of astronomy. One, which was exemplified by Ptolemy, constructed mathematical models that predicted the positions of the planets accurately without purporting to represent their actual motions. The other alternative was either to claim with Aristotle and his followers that the true causes of planetary motions could be provided only in physics rather than astronomy, or to adopt the sceptical attitude of Proclus that it is impossible for human beings to achieve the kind of understanding to which Aristotle aspired. The sceptics and Aristotelians were thus agreed about the limitations of mathematical astronomy: 'The geometric contrivances we use to save the phenomena are neither true nor likely. They are purely conceptual… Very different hypotheses may yield identical conclusions, one saving the appearances as well as the other' (Duhem 1969, 21).

The conviction that hypothetical causes, such as planetary motions, could never be confirmed by the observational evidence to which they conform was motivated by, among other things, the recognition that 'affirming the consequent' is a logical fallacy. If one finds Murphy's corpse, and if one then reasons: 'had *A* murdered Murphy, the latter would be dead; Murphy is dead; therefore *A* murdered him', it was obvious from at least the time of Aristotle that the conclusion does not follow and that Murphy would be equally dead had he died from natural causes, had someone else dispatched him, etc. An abiding awareness of this fallacy prevented astronomers from concluding that a given astronomical hypothesis must be true simply because it implied various positions of the planets that happened to coincide with observations. As Aquinas

wrote, reflecting the established tradition of commentaries on Aristotle to which he contributed: 'The assumptions of the astronomers are not necessarily true. Although these hypotheses appear to save the phenomena, one ought not affirm that they are true, for one might conceivably be able to explain the apparent motions of the stars in some other way' (Duhem 1969, 41).

Osiander was well aware of the two-model analysis of astronomy, to which he appealed directly in order to reject realist interpretations of *On the Revolutions*. As Copernicus lay dying in 1543 and his book was being prepared for publication in Nuremberg, Osiander composed an anonymous foreword in which he informed readers that, since an astronomer 'cannot in any way attain to the true causes [of planetary motions], he will adopt whatever suppositions enable the motions to be computed correctly from the principles of geometry for the future as well as for the past' (1992, xx).[3] He claimed that the hypotheses adopted by Copernicus 'need not be true nor even probable', and that 'they merely provide a reliable basis for the computation' of planetary motions (1992, xx), although it is very doubtful that Copernicus shared this antirealist interpretation of his work. Osiander contrasted what he described as the mathematical fictions invented by astronomers with philosophers' efforts to seek at least 'the semblance of truth', although he demoted both disciplines by conceding that neither astronomers nor philosophers 'will understand or state anything certain, unless it has been divinely revealed' (1992, xx). He thereby relied on one of the unquestioned implications of the period concerning the certainty of revelation, which was discussed above in 3.2.

Although the anti-realist implications and sceptical connotations of Osiander's foreword compromised the explanatory ambitions of Copernicus' astronomy, Johannes Kepler subsequently addressed many of the epistemological assumptions of instrumentalism in the early years of the seventeenth century. His most extensive discussion of these issues was articulated in reply to an explicitly instrumentalist tract written by Nicolaus Ursus (Nicolai Baer), entitled *A Tract concerning Astronomical Hypotheses*. Kepler's reply was completed in 1601, but it remained unpublished until 1858 and therefore could not have influenced the understanding of scientific method in seventeenth-century France. It did, however, underpin the scientific realism with which Kepler presented his views in *New Astronomy*, which was widely read and became significantly influential in subsequent decades.

Ursus had defined an 'hypothesis' as 'a fictitious supposition' that is contrived out of imaginary circles or similar imaginary motions, and which was 'thought up, adopted, and introduced for the purpose of keeping track of and saving the motions of the heavenly bodies and forming a method for calculating them' (Jardine 1984, 41). He thereby assumed the falsehood of hypotheses in the very definition of the term. In reply, Kepler deployed a whole series of objections, beginning with an alternative definition of the term 'hypothesis'.

[3] For the authorship of the anonymous preface, see Jardine (1984, 150) and Gingerich (2004, 158–64).

Kepler pointed to the use of what were called 'hypotheses' in geometry, which included axioms that were assumed to be true. Just as it was illegitimate for Ursus to define hypotheses as always false, it would have been equally unwarranted for Kepler to redefine them as if they were always true. Instead, he challenged Ursus's claim as 'a perverse understanding of the original sense' of the term, 'which seems to Ursus to be the same as "to feign" ' (Jardine 1984, 144). Kepler also distinguished between mathematical and physical hypotheses. 'Even if the conclusions of two hypotheses coincide in the geometrical realm, each hypothesis will have its own peculiar corollary in the physical realm' (Jardine 1984, 141–2), and he argued that the physical differences between hypotheses would provide independent reasons for choosing between them. Thirdly, Kepler challenged the assumption that two different hypotheses could have exactly the same observational implications once they are integrated into a comprehensive theory and assessed against a wide range of phenomena. He argued that, if hypotheses were tested by applying those two criteria, a false hypothesis would eventually 'betray itself' (Jardine 1984, 140). Finally, Kepler compared the methods used in astronomy with other disciplines in which causal hypotheses are constructed to explain observations. In astronomy, 'we first of all perceive with our eyes the various positions of the planets at different times, and reasoning then imposes itself on these observations and leads the mind to recognition of the form of the universe' (Jardine 1984, 144). While the logic of this mental 'leading' remained unspecified, it was important to recognize that the starting-point for constructing hypotheses was observation. Kepler pointed out that the same method was used when a physician reasons from symptoms to the identification of a disease, or when William Gilbert proposed an explanation of magnetic phenomena by 'first collecting observations in the study of magnets' (Jardine 1984, 146). In natural philosophy, therefore, hypotheses were not chosen arbitrarily; their initial choice was at least guided by observations.

Kepler thus opened up a wider discussion than could have been envisaged if one merely compared how alternative mathematical hypotheses 'save the phenomena'. He openly acknowledged one of the factors that recurred frequently in subsequent discussions, namely that hypotheses designed to explain natural phenomena must involve some degree of conjecture:

> I shall also do the same where, as is customary in the physical sciences, I mingle the probable [*probabilia*] with the necessary and draw a plausible [*probabilem*] conclusion from the mixture. Since I have mingled celestial physics with astronomy in this work, no one should be surprised at a certain amount of conjecture [*conjecturas*]. This is the nature of physics, of medicine, and of all the sciences which make use of other axioms besides the most certain evidence of the eyes. (Kepler 1992, 47)[4]

Kepler did not claim, however, that one could choose between Ptolemy and Copernicus merely by asking which hypothesis best saves the phenomena. One had to ask which

[4] Kepler refers in *New Astronomy* to a causal hypothesis as a 'physical conjecture' (*conjectura physica*) (1992, 52, 53).

one best *explains* the observed motions of the planets, and in that judgement the simplicity of competing hypotheses, and the plausibility of the proposed cause, were relevant criteria (Westman 1972). Kepler's legacy in *New Astronomy* included, therefore, not just an elegant mathematical description of planetary motions that coincided with accurate observations, but an attempt to provide a hypothetical causal explanation of those motions by reference to a universal solar force that was conceived by analogy with magnetic force.

The traditional arguments in favour of instrumentalism were particularly relevant and efficacious when applied to astronomy, especially in the absence of any plausible physical explanation of what moved planets in their apparent paths, because it was impossible to construct a controlled experiment that might be used to filter out possibly irrelevant factors in any given hypothesis. During the seventeenth century, however, natural philosophers constructed theories in a wide range of fields such as magnetism, physiology, chemistry, meteorology, and optics—disciplines in which it was difficult to understand hypotheses as mere computational devices, because they involved postulating hypothetical causes of observed phenomena and because it was possible to construct experimental tests in some fields, although the logic of such confirmatory tests remained to be clarified (4.3). The proliferation of causal hypotheses and their irreplaceable role in a new understanding of scientific explanation eventually resulted in a redefinition of knowledge that was as fundamental as the original Aristotelian definition that it replaced. Descartes was among the first French natural philosophers to contribute to that development.

4.2 Hypotheses

Descartes had worked on a draft of *The World* for a number of years before deciding, in 1633, to cancel its publication in light of Galileo's condemnation. He had acknowledged the significance of sceptical concerns about sensory perception but, rather than being obstructed by them in reconceiving scientific knowledge, he exploited the unreliability of sensations to argue for an alternative interpretation of sensory information. That involved making a distinction between (a) the way in which natural phenomena appear to us and (b) the entities or events that are the likely sources of our sensory perceptions. He wrote in the first chapter of *The World*:

> Since my plan here is to discuss light, the first thing that I want to bring to your attention is that there may be a difference between our sensation of light, i.e. the idea that is formed in the imagination by means of our eyes, and whatever it is in the objects that produces that sensation in us . . . For although everyone is commonly convinced that the ideas we have in our thought are completely similar to the objects from which they originate, I see no argument that guarantees that this is so . . . You are well aware that words do not in any way resemble the things they signify; that does not prevent them from causing us to think about those things . . . Now if words—which have meaning only as a result of a human convention—are enough to make us think about things that do not resemble them in any way, why is it not

possible that nature may also have established a particular sign which would make us have the sensation of light, even though such a sign contains nothing in itself that resembles that sensation? (XI 3–4: D 85)

Descartes used the same example as Galileo to illustrate that argument, by asking readers if a tickling sensation caused by a feather touching our skin resembles anything in a feather or its motion: 'One rubs a feather lightly over the lips of a sleeping child and they have a sensation of being tickled; do you think that the idea of tickling that they conceive resembles something in the feather?' (XI 6: D 86)[5] Descartes argued that 'I see no reason to make us believe that whatever is in the objects from which we get a sensation of light resembles this sensation' (XI 6: D 86–7) any more than the motion of a feather resembles a tickling sensation.

This distinction between what came to be known as primary and secondary qualities was not based on comparing various sensations with the realities that stimulated them and then examining whether the former resembled the latter. Apart from the fact that such an assessment would be impossible—it would collapse into comparing one sensation of *x* with another sensation of the same *x*—it failed to provide any sense in which sensations could 'resemble' the stimuli that cause them. Primary qualities, therefore, were not a special class of sensations or ideas that 'resembled' their objective stimuli; they were unequivocally theoretical entities, which were predicated of the realities that stimulate our sensory organs as hypothetical properties that could explain the types of sensation and variations in sensations that we experience.

Since we cannot validly infer descriptions of the properties of external bodies directly from the sensations that we experience, the epistemic gap between them might appear to support scepticism. But Descartes drew the opposite conclusion—that the only way to close that gap is by recourse to hypotheses. Evidently, such hypothetical reasoning is no more than probable, but that is the best one can do. It also raises the question whether we have any more reason to adopt some hypotheses rather than others.

The rejection of the traditional scholastic assumption—that sensations provide reliable information about properties of their corresponding stimuli—prompted Descartes to postulate a single type of matter in the universe, rather than the traditional terrestrial and celestial matter, and to speculate about the size, shape, motion, and number of its various types of particle. The principle of parsimony implied that he ought to have assumed only as many different types of particle as were necessary, and he settled (for no obvious reason) on three kinds that differed primarily in size and the speed of their motions. Without having to justify that choice immediately, Descartes took refuge in the construction of a hypothetical world that allowed his imagination

[5] Galileo had used a similar example in *The Assayer* (1623), in which he compared the differential effects of touching a marble statue (which feels nothing) and a living body (which experiences a sensation of tickling), although the external stimulus is identical in each case (Drake 1957, 275).

unlimited freedom to assume anything he needed to construct viable explanations of natural phenomena:

> There are many things that remain for me to explain here, and I would even be quite happy to add some arguments to make my views more plausible. But in order for the length of this discourse to be less boring, I wish to cloak part of it in the invention of a fable through which, I hope, the truth will appear sufficiently… (XI 31: D 101–2)

By the time Descartes published the *Principles of Philosophy* twelve years later, he had become more self-conscious about the speculative character of his assumptions about the parts of matter, although he had not modified his descriptions of them in the meantime. On this occasion, therefore, he added a rationale for the degree of speculative freedom that he exercised:

> It is already clear, from what has already been said above, that all the bodies in the world are one and the same matter, which is divisible into various parts… But we cannot determine the size of these particles, how quickly they move, or what kinds of circular motions they observe simply by using our reason, because they could have been constituted by God in countless different ways and experience alone can teach us which among those many alternatives he chose. We are therefore free to assume anything we wish about them, on condition that everything that follows from our assumptions agrees with experience. (VIII-1, 100–1)

Descartes did not conclude that he was free to assume anything he wished about pieces of matter in motion, because he was constrained by—among other things—the intelligibility of the primary properties that he attributed to them. Nor could he have discovered any of those properties by observation, since the postulated particles were too small to be observed even if he had had the use of a microscope (which had not yet been invented in 1633). There was no other solution apart from relying on hypotheses.

It seems as if Descartes was not clear about the logic of this enterprise in his initial work in natural philosophy, and that he offered a somewhat reluctant admission about it in the *Discourse on Method*, which he composed as a preface to the three essays of 1637 as the page proofs were being corrected by the printer. In Part VI, he wrote:

> If some of the issues that I have spoken about at the beginning of the *Dioptrics* and the *Meteors* shock people initially, because I call them assumptions and seem not to want to prove them, they should have the patience to read the whole text attentively and I hope that they will be satisfied. For it seems to me that the arguments are interconnected in such a way that, as the last ones are demonstrated by the first, which denote their causes, the first arguments are demonstrated reciprocally by the last, which denote their effects. It should not be imagined that, by doing so, I commit the fallacy that logicians call a 'vicious circle'; since experience makes most of these effects very certain, the causes from which I deduce them are used not so much to prove as to explain them; but, in exactly the opposite way, it is the former which are proved by the latter. (VI 76: D 53)

Despite the fact that the 1637 essays were published without the author's name and that Descartes refused to reveal his address to correspondents (Clarke 2006, 157–9), he

invited selected readers to submit queries or objections to his publisher in Leiden and promised to reply to them. The passage quoted above attracted a number of similar objections. Jean-Baptiste Morin (1583–1656) wrote to Descartes in February 1638 and appealed to the same kind of argument on which Osiander had relied in his comments about the hypothetical character of *On the Revolutions*:

> You know very well that the appearance of celestial movements results equally certainly from the assumption that the earth is at rest as from the assumption of its motion. Therefore, the experience of this appearance is not sufficient to prove which of the two causes just mentioned is the true cause . . . There is nothing easier than to adjust some cause to a given effect, and you know that this is familiar to astronomers who by means of different hypotheses, of circles and ellipses, come to the same conclusion . . . in order to prove that the cause of an effect is the true and unique cause, it is necessary to prove at least that such an effect could not be produced by any other cause. (I 538, 539)

Descartes conceded the apparent plausibility of the objection and even granted that light might turn out to be something other than what he had assumed—although, in that case, he still claimed that everything that he had demonstrated about light in his *Dioptrics* would then be deducible from that alternative theory.

Morin also objected to the apparent circularity of proving effects by their causes and causes by the same effects, to which Descartes replied:

> You also say that 'to prove effects by a cause, and then to prove this cause by the same effects, is a logical circle'. I agree. However, I do not accept, for that reason, that it is a logical circle to explain effects by a cause and then to prove the cause by the effects, because there is a big difference between 'to prove' and 'to explain'. I add that it is possible to use the word 'demonstrate' to mean one or the other, at least if one understands it according to common usage and not with the special meaning that philosophers give it. (II 197–8)

Descartes emphasized that the effects are known by experience, rather than by inference from knowledge of their hypothetical causes. One's observational knowledge of effects is then used to confirm the plausibility of hypothetical causes, although the logic of that inference would remain disputed for centuries. The use of the term 'demonstrate' to designate either the explanatory or confirmatory inference represented an explicit rejection of its traditional Aristotelian meaning.

Descartes gave a similarly defensive reply to Mersenne in 1638, in which he was even more explicit about what kind of certainty one could reasonably hope to achieve in explanations in natural philosophy.

> You ask if I claim that what I wrote about refraction [in the *Dioptrics*] is a demonstration. I think it is, at least insofar as it is possible to provide a demonstration in this subject without having first demonstrated the principles of physics by metaphysics . . . and insofar as any other question in mechanics, or optics, or astronomy, or another subject that is not purely geometrical or arithmetical has ever been demonstrated. However, to ask me to provide geometrical demonstrations in a subject that depends on physics is to ask me to do the impossible . . . those who do not believe what I wrote, because I deduce it from certain

assumptions that I did not prove, do not know what they are asking for, nor what they ought to ask for. (II 141–4)

Admittedly, this concession still suggests that it might have been possible to provide a metaphysical foundation for natural philosophy that would compensate for the uncertainty that results from a hypothetical starting point. But it also acknowledges that one should not expect the same kind of demonstrations in any physical discipline as is possible in pure mathematics, and that those who engage in the former will just have to settle for something less than mathematical certainty. Without specifying the precise epistemic status of those disciplines, however, Descartes was arguing that, in subjects such as optics or meteorology, one cannot avoid adopting hypotheses in the course of constructing explanations and then checking to see if their implications correspond with observable or experimental data. He addressed the issue about the nature of explanation on numerous occasions in the course of his subsequent researches into natural phenomena.

4.3 Structural Explanation

The revolutionary change in the concept of explanation during the seventeenth century was motivated by two complementary arguments: a sustained critique of the scholastic account of explanation, and a proposal to replace it by structural explanations of natural phenomena.[6] Descartes shared with many of his contemporaries the insight that the forms and qualities to which scholastics appealed were fundamentally non-explanatory.[7] If we notice some natural phenomenon, such as the fact that iron is attracted to a magnet, the scholastic tradition appeared to explain that by saying that the magnet had a 'magnetic form' or a 'magnetic quality'. There is an obvious sense in which that is true. If some natural event or phenomenon occurs, then the relevant objects involved must have a capacity to make that occurrence possible. If the relevant capacity is then named, usually in Latin, by using a term that is logically dependent on the reality to be explained, the linguistic innovation of merely inventing a new name may give the impression that one has also made some progress in explaining the phenomenon in question. Thus sleeping powder is said to have a '*virtus dormativa*', magnets have a '*virtus magnetica*', and even human beings have a '*facultas intelligendi*' (which is a capacity to think!).

Once the newly minted forms are conceived as some kind of independent realities that are distinct from the phenomena to which they are attributed, they acquire a counterfeit explanatory status, and Descartes rejected them for three reasons: they were redundant, they were not understood, and those who used them failed to

[6] I avoid calling the novel style of explaining natural phenomena 'mechanical' since it was primarily a kind of hypothetical dynamics about parts of matter in motion.

[7] Boyle's *The Origin of Forms and Qualities According to the Corpuscular Philosophy* (1666) was a prominent exposition of that critique in English (Boyle, 1979).

explain how they could cause the effects for the explanation of which they had been invented.

Descartes addressed the redundancy of forms and qualities in the opening pages of *The World*, in which he reflected on how to explain what occurs when a piece of wood burns:

> Someone else may imagine, if they wish, the 'form' of fire, the 'quality' of heat, and the 'action' that burns it as things that are completely distinct in the wood. For my part—as someone who is afraid of making a mistake if I assume anything more in the wood than what I see must necessarily be there—I am satisfied to conceive in it the movement of its parts…on condition simply that you grant me that there is some power that violently moves its finer parts and separates them from the larger parts, I find that this alone could cause it to undergo all the same changes that are observed when it burns. (XI 7–8: D 87–8)

Evidently, the alleged redundancy of forms and qualities depended on the success of alternative explanations, and Descartes made an act of faith in the potential success of his research strategy by claiming, in advance, that the primary qualities on which he relied could deliver viable explanations. Accordingly, he advised Regius in January 1642 not to provoke Calvinist theologians by explicitly denying the existence of scholastic forms, but simply not to mention them: 'we do not need them in order to provide the causes of natural things' (III 500).

The second reason for rejecting forms and qualities was that even those who proposed them did not understand what they were and, in that sense, they were occult.

> Proponents [of substantial forms] admit that they are occult and that they do not understand them. If they say that some action results from a substantial form, that is the same as saying that it results from something that they do not understand—which explains nothing…In order to provide explanations easily of everything (if indeed one provides an explanation of anything when what is obscure is explained by what is more obscure) they have invented substantial forms and real qualities. (III 506, 507)[8]

The core of this objection was not simply the fact that no one knew what forms were, but that their use was circular. The explanatory forms were named after the very phenomena to be explained, and nothing more was known about each form except that it was precisely the kind of thing that was required to provide an explanation. One might as well have said that each natural phenomenon is explained by its 'explanation'. Newton later summarized this objection in his *Opticks*: 'To tell us that every Species of Things is endow'd with an occult specifick Quality by which it acts and produces manifest Effects, is to tell us nothing' (1952, 401).

Finally, Descartes objected in the *Principles* that, even if one granted the existence of what scholastics called forms and real qualities, one would still not understand how

[8] Bos (2002, 116) redates this letter from Descartes to Regius to February 1642.

those postulated entities interacted with the physical features of natural phenomena, such as their shape, size, or motion:

> We cannot understand how something that is completely different from them in nature is produced by these same things (namely by size, shape, and motion), such as those substantial forms and real qualities that many people assume in things; nor how subsequently these same qualities or forms would be able to cause local motions in other bodies. (VIII-1, 322)

This objection acquired added significance when it was raised by Princess Elizabeth in relation to mind–body dualism (see 5.6 below).

The deficiencies of scholastic explanations were highlighted by comparison with the claimed superiority of those proposed by corpuscularian natural philosophers of the seventeenth century. One of their primary assumptions was that, to explain any natural phenomenon, one should think of it as a machine composed of small interacting parts, and that an explanation would then include an account of both the parts and their interactions. Boyle summarized this widely held view as follows:

> To explicate a phenomenon, it is not enough to ascribe it to one general efficient [cause], but we must intelligibly show the particular manner how that general cause produces the proposed effect. He must be a very dull inquirer who, demanding an account of the phenomena of a watch, shall rest satisfied with being told that it is an engine made by a watchmaker, though nothing be thereby declared of the structure and coaptation of the spring, wheels, balance and other parts of the engine, and the manner how they act on one another, so as to co-operate to make the needle point out the true hour of the day. (1996, 150)

The effectiveness of this critique depended on how little one knew about watchmakers; if one knew only that a watchmaker is someone who is able to make watches, then one's understanding of watches would be zero. But if one even knew that the skill involved included fitting small moving parts together, in some way, one's understanding of watches might be 'dull' but not completely empty.

The mechanism of a watch thus provided a general model, in this period, for what a viable explanation should resemble. It was assumed that macroscopic bodies were composed of microscopic parts, that they had characteristic sizes and shapes, and that they moved relative to each other in ways that were determined by laws of motion. Ordinary observation confirmed that bodies have various sizes and shapes, that they move and collide, and that their post-impact motions seem to be determined by the relative size and the initial speed and direction of the colliding bodies. Thus Descartes asked, in the *Principles*: 'Who has ever doubted that bodies move, that they have various sizes and shapes . . . we perceive this not only with one of our senses but with many of them, by sight, touch, and hearing' (VIII-1, 323). Those like Descartes who were willing to work within the relative poverty of those limited theoretical resources found adequate compensation in the conviction that their hypothetical causes were at least intelligible or, in the language of the times, they were not occult. The history of resistance to the concept of force, as an explanatory factor in the acceleration of bodies, shows the extent to which an aversion to scholastic occult

powers and unexplained dispositional qualities constrained dynamics (and other developing sub-fields in natural philosophy) within boundaries that eventually proved to be far too restrictive (4.7 below). Even the 'incomparable Mr Newton', as Locke called his contemporary in Cambridge, was so concerned about any taint of occultness eighty years later that he misdescribed the method that he used in composing the *Principia* and claimed that 'whatever is not deduced from the phenomena is to be called a hypothesis; and hypotheses . . . based on occult qualities . . . have no place in experimental philosophy' (1999, 943).[9]

With these assumptions in place about the kind of theoretical entities that were acceptable in natural philosophy, Descartes limited his description of the matter of the universe to concepts that were borrowed from the familiar world of bodies in motion. Morin objected to relying on analogies (*comparaisons*) between the familiar world of observable bodies and the theoretical entities required in natural philosophy. He argued that 'problems in physics can rarely be resolved by analogies' because there is almost always some difference between a model and the corresponding reality, or some degree of 'explaining what is obscure by what is more obscure' (II 291). Descartes rejected that objection, however, in September 1638, for precisely the reason to which Morin had appealed: we already understand pieces of matter in motion and they therefore provide an intelligible model of what occurs at the micro-level:

> In the analogies I use, I compare only some movements with others, and some shapes with others, etc.; that is, I compare things that are not accessible to our senses because they are too small with those that are accessible; the latter do not differ from the former more than a large circle differs from a small one. (II 367–8)

The reason he offered was based on his critique of scholastic entities: if we wish to explain some phenomenon, we must understand the *explanans* better than the reality that it is designed to explain, and Descartes felt secure in his understanding of parts of matter in motion. Models and analogies were therefore central to his explanatory enterprise.

Descartes had previously outlined his reasons for using models in a letter to Plempius (October 1637) where he argued that, when hypothesizing models of light, there was nothing more reasonable than 'to judge things that we do not perceive, because of their small size, by comparison and contrast with those that we see' (I 421). He repeated this defence in reply to Morin's objections in 1638:

> I claim that they [models and analogies] are the most appropriate ways available to the human mind for explaining the truth about questions in physics, to such an extent that, if one assumes something about nature that cannot be explained by any analogy, I think that I have shown conclusively that it is false. (II 368)

[9] This famous rejection of occult qualities was included in the General Scholium that Newton added to the third edition of the *Principia* (1726).

Even the human body must be explained by analogy with a machine, so that the model could 'represent' the reality to our minds.[10]

The efficacy of models was demonstrated in Descartes's discussion of light in the *Dioptrics*, where he avoided speculating about the true nature of light and was willing to settle for a model that would at least enjoy the same degree of success as those used by astronomers:

> Since I have no reason to talk about light here except in order to explain how its rays enter the eye and how they may be turned by the various bodies that they encounter, it is not necessary that I undertake to say truly what its nature is; I believe that it will be enough if I use two or three analogies that help us to understand it in the most appropriate way for explaining all its properties with which experience acquaints us, and then for deducing all those other properties that cannot be noticed as easily. We thereby imitate astronomers who, although their assumptions are almost all false or uncertain, nonetheless—since their hypotheses are consistent with various observations that they had made—do not fail to draw several very true and very certain conclusions from them. (VI 83)

This general justification introduced three of the analogies on which Descartes relied in his analysis of how light is refracted: a blind person's use of a stick to model the force or pressure with which light impinges on our eyes; wine leaking from a vat, which resembles the linear transmission of light; and a tennis ball striking a thin sheet of permeable material to model a ray of light that is transmitted through the boundary between two different translucent materials. Descartes used these analogies to discover what is usually called Snell's Law of refraction, that the relationship between the sine of the angle of incidence and the sine of the angle of refraction is a constant for any two media.

Since Descartes explicitly adopted a hypothetical method that relied on models or analogies, he could not ignore the echo of Aristotelian demands for demonstrations, and was forced to address the unresolved question about the logic of confirmation that his method assumed.

4.4 Confirmation

Confirmation theory throughout the seventeenth century was overshadowed by the imminent threat that one had committed the fallacy of affirming the consequent. That applied particularly to theoretical postulates for which there was no independent empirical evidence, in contrast with assumptions that were capable—at least in principle—of being decided empirically. The latter included many facts about the natural world that were not yet known, possibly because they were difficult to observe because of their size or distance from the observer, or because they required experiments that had not been done or were too expensive, etc. Descartes's natural philosophy includes

[10] In the *Treatise on Man*, Descartes often refers to the machine of the body (XI 120, 141). This analogy is discussed below in 6.5.

countless references to such observations or experiments as being necessary to confirm claims that were included in his account of various natural phenomena.

Thus Descartes claims that experience confirms that the pupil of an eye expands and contracts in response to light (VI 107), that it is possible to make lenses from ice (VI 82), or that bodies we find on earth are full of pores (VI 87). In a case that is somewhat closer to an experiment or, at least, an observation in controlled conditions, he claimed that a small sphere accelerates inside a capillary tube if the tube is swung in a circular motion by holding it at one end. In that case, he claimed, *hoc experientia confirmat* (VIII-1, 111). In other cases, experiments in the modern sense of the term were required and Descartes either claimed to have performed the relevant confirming experiments or acknowledged that he had been unable to do so. Thus, the sine law of refraction was confirmed by experiments (I 236: VI 102), as were variations in the speed of liquids moving through tubes (III 617, 805), and variations in the weight of bodies in proportion to their distance from the earth's centre (II 225). In fact, Descartes's correspondence is replete with discussions of experiments and measurements that had to be made before he could make progress in his natural philosophy. He suggested an experiment to measure the speed with which light is transmitted, which he assumed to be instantaneous; since he failed to measure any delay when light was transmitted between the earth and the moon during a lunar eclipse (because the measuring instruments available were inadequate to the task) he concluded that the experiment confirmed his claim (I 310).

He had acknowledged the relevance of crucial experiments in the *Discourse on Method* because, even if his fundamental principles were correct, there was hardly any particular effect that could not have been deduced from them in different ways and the major challenge was to determine in which of these alternative ways the specific phenomenon had been caused. 'I know of no other way of doing this except by then looking for some experiences such that their occurrence is not the same if the effect should be explained in one rather than another of these two ways' (VI 65), and he even imagined that he had reached a stage in his work where he knew how to do most of the required experiments. One such crucial experiment was conducted on a mountain in the Auvergne to test variations in atmospheric pressure at different heights above sea level.

4.5 Pascal's Crucial Experiment

Descartes travelled from the United Provinces to Paris in 1647 and, on that occasion, he visited Pascal on two consecutive days, 23/24 September. They discussed a number of questions in natural philosophy, including the experiments with mercury tubes that Evangelista Torricelli (1607–47) had conducted in Italy. It was widely reported that if a tube (enclosed at one end) is filled with mercury and if the open end is submerged in a dish of mercury, the mercury in the tube did not flow out completely, as might have been expected. Instead, it dropped to a height of approximately thirty inches and

remained relatively steady with what appeared to be no material of any kind in the empty space at the closed top of the tube.

Scholastic natural philosophers explained this phenomenon by saying that nature abhors a vacuum and that its abhorrence was sufficient to prevent most of the mercury flowing into the dish. Descartes had criticized that type of explanation for many years and objected that intentional states, such as abhorring, should be attributed only to human agents and that the scholastic theory merely camouflaged a failure to provide a genuine explanation. He subsequently claimed, in a letter to Carcavi (June 1649) that he had suggested a crucial experiment to Pascal to decide between the rival explanations and, nine months after it was performed, he was still writing to correspondents in France to inquire if it had been conducted and what the results were.[11] The so-called 'great experiment' was completed as follows.

Pascal wrote to his brother-in-law, Florin Périer, in November 1647 and asked him to do a series of experiments on variations in atmospheric pressure on the puy-de-Dôme in the Auvergne, because he was too ill to travel there and lacked appropriate conditions for doing the experiment near Paris. Following a long delay, as he waited for appropriate weather conditions, Périer conducted the experiment on 19 September 1648, and then described it as follows. He purified six pounds of mercury for three days and set out with five witnesses, early in the morning, to measure the height of the mercury column in an inverted Torricelli tube at the bottom of the mountain and at various intermediate stages while climbing to the top. He set up two exactly similar tubes, and both showed the same measurements at the base of the mountain. Périer left one tube in place, in the care of a Minim friar called Father Chastin, and asked him to watch it during the day and to record any variations in the height of the mercury.

Meanwhile, Périer and his companion witnesses climbed the mountain and took readings at various intermediate stages of their ascent towards the summit, which was estimated to have been about 5,000 feet above the initial reading site. At the mountain top, the mercury had dropped 'three inches and one and a half lines', and the observers greeted the anticipated result with 'wonder and delight' (I 432).[12] They repeated the measurement five times in varying weather conditions on the mountain top, and always got the same result. Périer and his assistants then descended and made further measurements at two intermediate places, where they noticed that the height of the mercury column increased inversely in proportion to its height above sea level. Finally, they rejoined Father Chastin and compared the readings on the two instruments, which were equal. The Minim friar also reported that, during the whole day, there had been no variation in his readings 'despite the fact that the weather was very

[11] Descartes told Mersenne (13 December 1647) that he had proposed the experiment to Pascal (V 99), and he repeated this claim to Carcavi (11 June 1649): 'I was the one who suggested, two years ago, that he [Pascal] do this experiment and that I had no doubt about its success, although I had not done the experiment myself' (V 366).

[12] Unless otherwise indicated, quotations are translated from Le Guern's two-volume edition of Pascal's works, and are identified by the volume and page number.

changeable—sometimes calm, sometimes rainy, sometimes very foggy and sometimes windy' (I 433). Périer reported that these uniform results 'were confirmed in the certainty of experience' (I 433).

Despite the apparent confirmation of the expected results, however, those who accepted them still disagreed about their interpretation. Descartes and Pascal both believed, even before the experiment had been completed, that the column of mercury was supported by the weight of the air above it, while scholastic philosophers could still maintain that nature's abhorrence of a vacuum varied with height above sea level. But there was also room to disagree about what was contained in the apparently empty top of the Torricelli tubes. Descartes rejected the theory that it was a complete vacuum that had physical dimensions and other properties, while Pascal claimed that his experiment had confirmed the hypothesis of a vacuum at the top of the tube.

Pascal was well aware of the distinction between an observable natural phenomenon and the hypothetical or theoretical causes to which it might be attributed.[13] There were therefore two potential sources of dispute in the interpretation of experimental results: one was the familiar issue of whether the agreement between experimental results and a given hypothesis confirmed the latter, and the other was whether a failure to observe effects that are implied by an hypothesis disconfirmed it. Pascal was as conscious of the first issue as Descartes and his contemporaries. For example, in the *Conversation with M. Sacy*, he acknowledged that principles 'may well be different and, nonetheless, lead to the same conclusions, for everyone knows that truth is often concluded from falsehood' (II 90).[14] Since Pascal set up the experiment with a single objective—to prove the hypothesis that the mercury was supported by the weight of the air—he might have argued: if that hypothesis were true, then one should find that the height of the mercury would decrease proportionately with one's height above sea level. And that was confirmed by experiment. But, for the reasons acknowledged by Pascal, it did not follow that the hypothesis must therefore be correct. He might have argued, instead, that at least it was not disconfirmed, although that result would not follow either.

A simplified logic of disconfirmation would look like the following. If hypothesis H implies an observation O, and if O is false (as determined by a reliable experiment or observation), then H is false. However, the conduct of most actual experiments (in contrast with thought experiments) presupposes many auxiliary hypotheses, which include minimally the reliability of the experimental equipment used and the non-interference of irrelevant or unknown factors. When an experiment fails to deliver the expected results, therefore, it is always logically possible to explain the outcome by

[13] This is reflected in his phrase '*les raisons des effets*'. See Carraud (1992, 255).

[14] Cf. *Pensées*: 'one often infers the same consequences from different suppositions' (Fr. 141/100; II 573). At the conclusion of the two *Traités* published in 1663, Pascal rejected an alternative interpretation to his own and gave as a reason the fact that different causes can give rise to the same effect: 'there is no one who does not laugh at this conclusion because it can happen that there is another cause' of the same phenomenon (I 526).

reference to the auxiliary hypotheses or, as practising scientists were aware, by interfering factors that one failed to notice. Robert Boyle discussed this issue in some detail.[15] Once he understood the implications of experiments that were performed poorly, Boyle was reluctant to surrender his most cherished hypotheses even in the face of apparently disconfirming evidence. He was more likely to blame the equipment used or the poor skill of his assistants than to doubt the fundamental hypothesis about 'the spring of the air, which most of my Explications suppose' (Boyle 1999–2000: III, 9).

It was not surprising that Pascal noticed a similar possibility if experimental results failed to coincide with one's expectations. He speculated that if a balloon filled with air expanded when it was transported to the top of a mountain, his hypothesis about the reduced weight of the air would be confirmed because 'there is nothing else that could cause it to inflate' (I 491). But his analysis of what one may legitimately conclude if the balloon failed to expand showed that he had a keen understanding of the logic of disconfirmation and that he was willing to exploit it, as Boyle did, to his own advantage. He argued that, if such a balloon failed to inflate, the result must be due to some defect in the conduct of the experiment.

> That [the inflation of the balloon] would *prove absolutely* that the air has weight… that it presses by its weight on all the bodies that it encloses; that it presses more on lower places than on higher places; that it compresses itself by its weight; that the air is more compressed at low altitudes than at high altitudes. And since in physics experiments have much more power to convince than reasoning, I have no doubt that people would wish to see the latter confirmed by the former. But… if there were no expansion in the balloon on top of the highest mountains that would not destroy what I have deduced, for I could say that the mountains were not high enough to cause a perceptible difference. Whereas if a very considerable difference occurred… certainly that would be *completely convincing* for me and there could be no more doubt about the truth of everything that I showed. (I 492: italics added)

Unfortunately, it would be illegitimate for Pascal to have drawn any conclusion about an absolute proof of his working hypothesis and, as he rightly acknowledged, one could not disconfirm an hypothesis by failing to observe expected results. Since neither confirming nor disconfirming experimental results were definitive, it remained an open challenge for Pascal to defend the conclusions that he wished to draw from the puy-de-Dôme results.

Pascal published initial results of his reflections on the vacuum in a short pamphlet in 1647 entitled *New Experiments concerning the Vacuum*, and then Périer's report of the puy-de-Dôme experiment in the following year under the title *A Report of the Great Experiment concerning the Equilibrium of Liquids*.[16] Critics challenged both the results and Pascal's interpretation of them. Some doubted whether various experiments

[15] Boyle acknowledged this in *Two Essays, Concerning the Unsuccessfulness of Experiments* in 1661 (Boyle 1999–2000: I, 35 ff).

[16] *Récit de la Grande Expérience de l'Équilibre des Liqueurs* is found in Pascal (I 426–37).

that had been described very briefly in *New Experiments* had actually been performed at all. Boyle was among the first to express doubts, in *Hydrostatical Paradoxes* (1666), where he wrote: 'I remember not that he [Pascal] expressly says that he actually try'd them' (Boyle 1999–2000: V 206). One of the experiments was almost impossible to conduct because it required someone to sit fifteen or twenty feet under water, with the end of a tube in contact with their thigh. Boyle also doubted if Pascal had access to glass tubes that were sufficiently strong and brass plugs that were sufficiently uniform and smoothly finished to carry out the described experiments.[17] Koyré expressed similar doubts that glassmakers could have provided Pascal with tubes that were strong enough to support a three-foot column of mercury in 1644, or that glass-makers in Rouen could have produced a tube that was thirty or forty feet long, which Pascal required to test the height of a column of water or wine at atmospheric pressure (Koyré 1956, 270–1).

Even if some of the experiments that Pascal reported prior to 1648 were merely thought experiments, in which he deduced some implications of his hypothesis about the weight of air, there is little doubt that Périer observed results that more or less matched their expectations in the 'great experiment'. Those results, however, still left further room for disagreement. Pascal's disputed interpretation of the apparently empty space at the top of a Torricelli tube mimicked exactly a similar dispute between Boyle and his critics, when he published *New Experiments Physico-Mathematical, Touching the Spring of the Air* and provoked an unresolved dispute with Hobbes, More, and a little-known Jesuit called Father Linus.[18] A different Jesuit, Etienne Noël, who had previously taught at La Flèche College, challenged Pascal's interpretation of the so-called vacuum in a series of letters in the autumn of 1647. Noël summarized his objections as follows:

> I read your experiments about the vacuum, which I find very good and ingenious, but I do not understand this apparent vacuum that appears in the tube… I say that it is a body, because it acts like a body insofar as it transmits light with refractions and reflections, and it retards the movement of another body. (I 373)

Noël argued that every space is a body and, in a later letter, that Pascal's vacuum was a very odd reality that was neither a substance nor an accident, nor anything else that could be described by using traditional categories. In fact, if one adopted Pascal's own criterion for accepting theoretical entities, he argued that the vacuum should be rejected because it was invisible, inaudible, etc. (I 394–5, 387).

[17] Boyle repeated one of Pascal's alleged experiments and failed to get the same result. He commented: 'It tempts me much to suspect, that *Monsieur Paschall* never actually made the Experiment, at least with a Tube as big as his Scheam would make one guess, but yet thought he might safely set it down, it being very consequent to those Principles, of whose Truth he was fully perswaded… But Experiments that are but speculatively true, should be propos'd as such, and may oftentimes fail in practise' (1999–2000, V, 224).

[18] This is examined in detail in Shapin and Schaffer (1985).

Pascal's replies to Noël exposed one of the central assumptions that made a resolution of the dispute unlikely. Pascal had appealed to experience, as his critic claimed, to decide between their respective views. He rejected as a dubious metaphysical entity the new kind of matter that was invisible, etc., which had been assumed by Noël. If it were acceptable to use such entities in explanations, he argued, then one could invent any kind of ad hoc entity one wished to fill all one's explanatory gaps; but 'all things of that nature, the existence of which is not manifested to any of our senses, are as difficult to believe as they are easy to invent' (1998-2000, I, 380). Pascal associated Noël's toleration of a new kind of matter with the scholasticism that he wished to reject:

> If one asks them . . . to make us see this matter, they reply that it is not visible. If one asks that it make some sound, they say it cannot be heard, and likewise for all the other senses. Thus they think that they have achieved much by making others incapable of showing that subtle matter does not exist, thereby depriving themselves of any chance of showing that it does exist. But we find more reason to deny its existence because it cannot be proved, than to believe in it for the sole reason that one cannot prove that it does not exist. (I 381)

Pascal's use of perceptibility as a criterion for accepting theoretical entities in natural philosophy was consistent with the conclusion of his posthumously published *Treatises on the Equilibrium of Liquids and the Weight of the Mass of Air*, in which he challenged Aristotelians to show how their theory was compatible with his experimental results. If they failed, he argued, they should recognize that 'experiments are the real masters that one should follow in physics' and that the 'experiment done in the mountains has overturned the universal belief that nature abhors a vacuum' (I 531). It should not have escaped his notice, however, that his critics did not reject his experimental results; they disagreed about the choice of the most appropriate hypotheses to explain them. Pascal collapsed that distinction by substituting the relative certainty and appropriateness of empirical evidence for the unacknowledged uncertainty of his preferred theory.

Pascal oscillated between three different accounts of the epistemic status of apparently confirmed hypotheses in natural philosophy. One was to take refuge in a form of instrumentalist empiricism, according to which natural philosophy provided nothing more than experimentally confirmed facts about the world and models for discovering new facts. That was the interpretation of Pascal adopted by Brunschvicg, who suggested that 'the whole of physics, for Pascal, is a science of fact' and he contrasted it with the 'Cartesian school, for which experiment could be only an auxiliary and provisional stage that is guaranteed by mathematical deduction' (Pascal 1904–25: XI, 136). While that would have provided the kind of certainty that Pascal craved, it failed to acknowledge the extent to which he was proposing and testing hypotheses.

Another option, with similar expectations about certainty, was to reconstruct natural philosophy on the model of mathematics and to think of its general principles and descriptions of specific phenomena as being linked by logical deductions. Pascal had considered the possibility, in *The Geometrical Spirit*, that physical theory might match the demonstrative certainty of geometry, and he adopted that strategy in his

correspondence with Father Noël concerning the vacuum. Pascal argued that no proposition is certain unless (i) it is so clear and distinct either to sense or reason, as appropriate, that it is indubitable (and such propositions are called axioms or principles), or (ii) 'it is deducible by infallible and necessary logical steps from such axioms and principles, on the certitude of which depends all the certitude of the consequences that are properly deduced from them' (I 378). Pascal was well aware that both he and Noël were trying to confirm competing hypotheses, and he was attempting to show that those of the Jesuit were ad hoc. So he outlined three kinds of hypothesis (where the latter were thought of by analogy with Kepler's mathematical hypotheses rather than those used in physics). Some hypotheses are such that their negation implies an absurd conclusion, and they must be true. The affirmation of others implies something absurd, and they must be false. Thirdly, if the affirmation or negation of an hypothesis fails to imply anything absurd, it remains uncertain until further examination. Pascal assumed that the logic of disconfirmation was sufficiently similar to the second type of hypothesis in geometry to support a conclusion that 'if something incompatible with even one of the phenomena is implied by an hypothesis, that alone is enough to confirm its falsehood' (I 382).

Pascal had made a similar attempt to model confirmation theory on geometry in *Treatise on the Weight of the Mass of Air*, but this ended with the concession already noted about an air-filled balloon that fails to expand when carried up a high mountain, despite the fact that such an expansion was implied by what he called a 'principle' (I 489–92). But, undaunted, he claimed that the experiment had delivered the expected results; he concluded that 'this experiment proves, with completely convincing force, everything that I have said about the mass of the air. And it was also necessary to establish it well, because it is the foundation of this whole discourse' (I 492). He then concluded that, on the basis of this foundation, he could explain a wide range of phenomena that had previously been unexplained, because they could all be deduced from this principle like theorems from an axiom.

The third option about the epistemic status of explanations in natural philosophy was the one that Pascal failed to adopt, namely that such explanations are irredeemably uncertain. That was also the only option that was plausible in the circumstances, and it was one that came to be accepted only slowly and reluctantly in the course of early modern natural philosophy. Pending its adoption, Pascal and Noël were doomed to disagree.

4.6 The Certainty of Hypotheses

The probability of hypotheses, especially of general hypotheses such as those that Pascal called 'principles', remained a contentious and unresolved issue throughout the early modern period. Nonetheless, some degree of consensus did eventually emerge from the complementary convictions that, despite being hypothetical, they were not

conceived arbitrarily or in an ad hoc fashion. Descartes provided a characteristic example of attempting to find a middle ground on this issue when he discussed the status of the three laws of nature in *The World* (1633) and subsequently in the *Principles* (1644).

Descartes introduced the laws of nature into the imaginary world that he described as a fable and then suggested that they could provide an explanation of the natural world. He assumed that God was the general cause of everything that occurs and that God's actions are eternally unchanging. Since there are obvious changes in nature, however, they must therefore be attributed to nature rather than to its divine source. For that reason Descartes did not attempt to deduce an explanation of natural changes from God's immutability; he avoided getting involved in what he called 'metaphysical' questions, and assumed instead 'two or three of the principal rules according to which one must think that God causes the nature of this new world to act' (XI 38: D 106). The first rule or law of nature was as follows: 'That each individual part of matter always continues to be in the same state, as long as it is not forced to change that state by colliding with others' (XI 38: D 106). Descartes supported this law by considering how philosophers explain all other natural changes apart from motion. No one imagined that a body could change its shape or size, or that a body could begin to move, unless some cause affected it. If one thought of the motion of a body as being simply another one of its modes, just like shape or size, then any change in a body's motion, including a reduction in its speed, would also require the intervention of a cause. If no such cause intervened, its motion would remain unchanged. He concluded that 'if [a part of matter] ever begins to move, it will always continue to move with an equal force until others stop it or slow it down' (XI 38: D 106).

The second law was also introduced as an hypothesis and, together with the first law, was said to be consistent with experience:

> I hypothesize [*je suppose*] as a second rule: when one body pushes another, it could not give the other any motion except by simultaneously losing as much of its own motion, nor could it take away any of the other's motion unless its own motion increased by the same amount. This rule, together with the preceding one, corresponds very well with all the experiences in which we see a body begin or cease to move . . . (XI 41: D 108)

This assumption was then supported by various experiences that would be readily intelligible if the two laws were accepted. The third and final law was as follows: 'when a body moves . . . each of its parts individually always tends to continue its motion in a straight line' (XI 43–4: D 109). This was shown to be consistent with our experience of turning wheels or swinging a stone in a sling. It was also consistent with the fact that God's causation does not change and does not intervene in nature to modify motions. 'This rule . . . depends only on the fact that God conserves each thing by a continuous action . . . precisely as it is at the very instant that he conserves it' (XI 44: D 110). Descartes appealed to the same principle of shared causation that he later used to explain human freedom in relation to divine causation; in the case of physical bodies,

'one must say that God alone is the author of all the motions that occur in the world, in so far as they exist and in so far as they are rectilinear, but that it is the various dispositions of matter that make them irregular and curved' (XI 46: D 111). Having assumed three laws, Descartes refrained from introducing any others on the assumption that those that he had explained (*expliqées*) would suffice.

Descartes introduced the same three laws (in a different order) twelve years later in the *Principles*, with a similar discussion of the shared causation of natural events by God and by bodies in motion. Assuming God's immutability, there are certain 'rules or laws of nature' that can be known (*cognosci possunt*) and these are 'the secondary or particular causes of the various motions that we notice in particular bodies' (VIII-1, 62). The first law, then, followed from the assumption that the modes of bodies do not change without the intervention of some secondary cause, since the primary cause is immutable. Therefore, 'everything in so far as it is simple and undivided remains as much as possible always in the same state and it is never changed except by external causes' (VIII-1, 62). Descartes pointed out that our ordinary experience of objects that are projected into motion completely confirms this inertial rule. The second law corresponded to the third law given in *The World*, to the effect that bodies tend to move in a straight line. This was also explained by God's immutability or, in different words, by the simplicity of nature, and was likewise 'confirmed by experience' (VIII-1, 64). Finally, the third law specified how motion is redistributed between colliding bodies in proportion to their initial forces. Descartes supported this law by distinguishing between the quantity of motion in a moving body and the determination of its motion, and by arguing that the total quantity of motion in the universe cannot diminish without a change in divine conservation. The question, then, which had been camouflaged by Pascal's analogy between geometry and physics, was whether these laws were deduced logically from a priori metaphysical principles, or whether Descartes explained and justified them by various considerations that were intended to make them appear intuitively clear, simple, and consistent with experience.

Descartes uses terms such as 'prove', 'demonstrate', and 'confirm' in ways that do not correspond to their definitions in modern symbolic logic, and it would be anachronistic to project back onto his Latin or French the ways in which we are likely to define those terms now.[19] Thus, while he claims to have 'deduced' the three laws from metaphysical principles and thereby to have 'explained' them, it is impossible to derive the laws from the metaphysical principles that he mentioned by using only rules of inference.[20] Either Descartes was an extremely poor logician, or we misunderstand the kind of 'deduction' that he had in mind in this context.

In fact, Descartes offered a similar range of arguments in support of the three laws as other contemporary natural philosophers. He appealed, among other features, to the simplicity and the conceptual clarity of the laws of nature: 'I do not think that one

[19] I have examined some of these uses in (1982), 207–10.
[20] See Clarke (1982, 83–104).

could think of other principles of things that are more simple, more accessible to the intellect, or even more probable' (VIII-1, 102). Secondly, he pointed out that the three laws were relatively few in number compared with the diversity and multiplicity of phenomena that they could explain: 'It seems to me that my explanations [*raisons*] should be accepted all the more insofar as I make them depend on fewer things' (VI 239).[21] Thirdly, Descartes contrasted the ad hoc character of rival explanations, which were designed piecemeal for each specific phenomenon, with the fact that his general principles explained many novel phenomena that had not been considered when they were initially formulated: 'We will know retrospectively that we have determined those causes correctly when we notice that they can explain not only the phenomena that we had looked at initially but all those that we had not previously considered' (VIII-1, 99). The French translation of this text added that, if things worked out that way, 'it would be a very strong argument to convince us that we are on the right track' (IX-2, 122).

Finally, Descartes frequently reminded readers that the laws of nature and their application were consistent with experience:

> If we use only principles that seem to be very evident and if we deduce from them only what follow as mathematical consequences, and if we then find that what we have deduced in this way from them agree accurately with all natural phenomena, we would seem to offend God if we suspected that the causes of things that were discovered in that way were false. (VIII-1, 99)

Of course, Descartes was not comparing his own laws of nature with rival candidates that borrowed from his work, such as those subsequently proposed by Newton, and it would be anachronistic for us to do so. He was comparing relatively few, easily intelligible laws with the 'real qualities', substantial forms, and elements of the scholastics, and the 'almost infinite' number of such quiddities with a single assumption about pieces of matter in motion, 'something that can be observed with the naked eye' (II 200). He urged that anyone with an open mind should be inclined to adopt his explanation rather than that of his scholastic rivals.[22]

These special pleadings on behalf of a natural philosophy that assumed only a uniform matter, which was indefinitely divisible into parts that had various shapes and moved in accordance with three hypothetical laws, left unresolved the question about the degree of certainty that Descartes could claim legitimately for his theory. He

[21] Cf. *Principles* (Part IV, 205), where Descartes discussed the analogy between code-breaking and scientific explanation: 'Whoever considers how many things about magnets, fire, and the whole fabric of the world have been deduced here from just a few principles, even if they thought that I adopted those principles casually and without any reason, may possibly acknowledge that it could hardly happen that so many things would fit together coherently if the principles were false' (VIII-1, 328).

[22] Descartes had outlined the same type of confirmation as early as *The World*: 'As regards the other things that I assumed that cannot be perceived by any sense, they are all so simple, familiar, and even so few in number, that if you compare them with the diversity and marvelous artifice that is apparent in the structure of visible organs, you will have far more reason to suspect that I have omitted some rather than included others that are not genuine…knowing that nature always operates in the most simple and easy ways possible, you will perhaps decide that it is impossible to find ways that are more like those with which it operates than those that are proposed here' (XI 201).

distinguished three kinds of certainty (2.6 above) and acknowledged that, even in the case of metaphysical certainty, human cognitive capacities are not guaranteed to know reality with the omniscience that theologians attribute to God, and that even the laws of logic, by which our thinking is necessarily controlled, may misguide us. Eternal truths are eternal only from our perspective, because they were created by God and cannot be revised by us. This potential gap between the certainty and truth of our opinions, however, was not a cause for concern. As he replied to the objections that Mersenne had collected, 'why should we be concerned about such an absolute falsehood'? (VII 145: M 81). The concluding argument in the Sixth Meditation, which was re-used in Part III of the *Principles*, was that we should use the cognitive faculties with which God or nature equipped us and, when they are used as carefully and strictly as they ought to be used, it would amount to insulting God to suggest that 'he created us so imperfectly that we are mistaken even when we use our reason properly' (VIII-1, 99).

Descartes was a notoriously defensive antagonist when correspondents objected to explanations of natural phenomena that he had proposed, even when he had invited readers to submit objections to his publisher and claimed to prefer criticism to praise.[23] He was particularly reluctant to concede that scholastic explanations were remotely plausible or that they constituted genuine alternatives to his own. Accordingly, Descartes rarely acknowledged explicitly that some of his hypothetical explanations were no more than mere guesses or that they could have been replaced by equally probable explanations by other natural philosophers. Instead, he tried to find ways to persuade readers that his natural philosophy or, at least, its fundamental principles were as certain as they could possibly have been. He reflected on the certainty or otherwise of his natural philosophy at the conclusion of the *Principles* in the following terms:

> There are some things, even among natural phenomena, that we regard with absolute and more than moral certainty. This is based on a metaphysical foundation, that God is supremely good and minimally deceptive, and that therefore the faculty that he gave us for distinguishing truth from falsehood, when used properly, cannot deceive us when, by using it, we perceive something distinctly. Mathematical demonstrations are like that… and if someone considers how my conclusions have been deduced from the simplest first principles of human knowledge in a continuous sequence, they may also include them among the absolutely certain truths… it will seem as if all the other phenomena, at least the more general ones about which I have written, could hardly be explained otherwise than as I have explained them. (VIII-1, 328–9)

The French translation added a final phrase that acknowledged that the author had also taken care to describe as doubtful all the explanations that he thought were such (IX-2, 325).

Descartes had abandoned completely the Aristotelian ideal of 'demonstrating' the properties of things by deducing them from knowledge of substances. He reminded readers that we know nothing at all about objects in our environment or, a fortiori,

[23] He wrote to Father Noël in October 1637: 'those who reproach me for some error will always please me more than those who praise me' (I 455). See similar expressions in I 349, 381, 475, 478.

about the stars or other remote phenomena unless light travels from the objects of perception to our eyes (VIII-1, 328–9). All our knowledge of natural phenomena, therefore, begins with perception, and its logical structure cannot be anything other than the construction of as few and simple hypotheses as are necessary to explain our perceptions of such phenomena. The results are more or less probable, and they represent the limits of human knowledge of the natural world. This was the view that was later summarized by Christiaan Huygens (1629–95). Huygens was, despite his nationality, a prominent founding member of the French Academy of Science and a reliable reporter about developments in scientific method during his scientific career. He had written a *Treatise on Light* while living in France and had submitted it in 1678 to the Academy of Science. But he delayed publication until 1690, in the Preface of which he provided one of the clearest contemporary descriptions of the epistemic status of 'demonstrations' in natural philosophy:

> One will see in this book the kinds of demonstration that do not provide as much certainty as those of Geometry and even differ much from the latter because, although geometers prove their propositions by principles that are certain and incontestable, in this book the principles are verified by the conclusions that are drawn from them; the nature of these things does not permit this to be done otherwise. It is possible, nonetheless, to achieve a degree of probability that quite often is almost equivalent to complete proof [*évidence*]. In other words, when the things that one has demonstrated by means of these assumed principles conform perfectly to the phenomena that experience has made observable, especially when there is a large number of such phenomena and also especially when one thinks about and predicts new phenomena that should follow from the hypotheses that one uses and when one finds that the effect corresponds with one's prediction. If all the proofs of probability are found in what I have decided to discuss here . . . that ought to be a great confirmation of the success of my research. (1690: Preface, 2–3)

The principal challenge for French natural philosophers in the late seventeenth century, therefore, was not to find new ways to prove their theories but to accept that they could not be proved, for reasons that were already available to them.

4.7 Cartesian Natural Philosophy

Newton published the first edition of *Mathematical Principles of Natural Philosophy* in 1687, but it failed to have any impact in France until the eighteenth century, following the appearance of a French translation of his *Opticks* (Amsterdam, 1720). Thus the two decades after the death of Descartes in 1650 were dominated by disputes between scholastic philosophers, who attempted to integrate new experimental results within their traditional conceptual framework, and Cartesian natural philosophers who developed and defended various theses from the published work of their hero.[24]

[24] This period also witnessed the first publication of Descartes's correspondence, edited in 3 volumes by Claude Clerselier (1657–67), in which the extent of Descartes's experimental work became more explicit. I discussed these developments in Clarke (1989).

Despite condemnation by Rome (in 1663) and by universities in France, and despite the absence of any major scientific discovery, Cartesian natural philosophy gradually acquired the status of a promising research programme and emerged as the only viable alternative to the fruitless and outdated philosophy of the schools.

This period of expansion and consolidation also reflected concern about two complementary issues with which Descartes had struggled, namely the concept of matter and the reality or otherwise of forces. Cartesian matter had been defined as uniform three-dimensional extension, so that parts of matter were distinguished only by their size, shape, and motion in relation to each other. But this was an extremely impoverished ontology with which to explain many natural phenomena that were so familiar that they could not be denied. For example, it was impossible to explain variations in the apparent density of different bodies without thinking that the matter of which they were constituted was more or less compacted. Those who adopted atomistic theories, such as Gassendi or Gerauld de Cordemoy (1626–84), could have explained differential densities by the size of the empty spaces between atoms, but that solution was not available to strict Cartesians.[25] Cartesians substituted an alternative concept of 'solidity', which was explained by analogy with a sponge; if one body were more porous than another, it would allow more foreign matter into its pores and its motion would be more or less inhibited by that extraneous matter flowing through it pores. But as long as all matter had the same density, the concept of solidity could not explain differences in the apparent compactness of various 'heavy' or 'light' bodies.

Cartesian natural philosophy was equally challenged by the flexibility of some bodies and by the elasticity of bodies that reflect on impact with others. It was well known that some bodies were flexible, such as a bow or the steel blade of a sword. If one's theoretical entities were limited to parts of matter in motion, one might try to explain flexibility as a body's recovery of its original shape by the motion of other parts of matter flowing through its pores. Descartes had offered such an account in the *Principles* (VIII-1, 274). If a body is bent from its usual shape, he suggested, its pores which are on the concave side of the bend are constricted in such a way that the matter that usually flows through them tends to force them to open, and thereby it causes the body to recover its original shape. But as Jean-Baptiste de la Grange objected, that fails to explain why the foreign matter would flow in the appropriate direction to force those slightly closed pores to re-open (1675, 358–9). It might happen, just as easily, that the matter coming into the other, open end of the distorted pores would cause them to distort even more and thus cause further bending of the flexible body rather than a restoration of its original shape.

The failure of this type of explanation became even more significant in the case of bodies that collide and rebound, because any plausible explanation of that phenomenon would have had to include a theory of why colliding bodies do not disintegrate and

[25] Cordemoy, *Discernement du corps et de l'âme* (1666), distinguished between 'body' and 'matter'. See Cordemoy (1968, 95–6).

why they recover their shape after an initial distortion. Descartes's whole natural philosophy was based on the laws of motion and the transfer of motion from one so-called 'hard' body to another on impact. Huygens subsequently did extensive work on elastic collisions before 1656, although his results were published only in 1669.[26] Mariotte (1620–84) also described experiments that involved dropping elastic bodies from different heights and measuring the extent to which they were deformed on impact (by an imprint on grease at the point of impact). He presented his results to the Royal Academy of Sciences in 1673 and published them two years later (Mariotte 1717: I, 27). Despite the significance of elastic collisions for Cartesian natural philosophy, its proponents nonetheless remained adamantly opposed to introducing a concept of elasticity because it was tainted by what Le Grand called scholastic 'gibberish' (1694, 56). 'Elasticity' seemed merely to name a phenomenon that bodies displayed rather than to explain it.

The sustained opposition to any extra property of bodies that could explain their elasticity was camouflaged by Descartes's assumption that, in addition to their size, shape, and motion, bodies also had a property of rigidity. This was most apparent in his account of magnetism, which assumed the motion of tiny grooved cylindrical bodies inside similarly grooved pores of magnetized bodies. Evidently, unless such tiny bodies retained their grooves, the explanation would collapse. But Descartes could not provide any account of rigidity, and any attempt to explain it in terms of even smaller parts that were interlinked or hooked together would lead to a regress. Malebranche noticed this problem and discussed it in *Search after Truth* (VI, ii, ch. 9), where he acknowledged that the supposed microscopic bonds that hold bodies together must be both strong enough to fulfil their function but not so strong that such bodies become incapable of subdivision. But even the hypothesis of relatively rigid, interlinked micro-bonds would merely transfer the problem of explaining why macroscopic bodies are rigid to the micro-level, at which the same problem re-appears in accounting for the rigidity of the small hooked particles that hold bodies together.

These challenges exposed the limitations of the Cartesian concept of matter, which was even incapable of explaining how to distinguish bodies from one another if they are not moving relative to each other. What was needed, evidently, was a degree of theoretical tolerance that would have allowed the introduction of forces of some kind to bind bodies together and to explain their varying degrees of flexibility or elasticity. But Cartesians were opposed to forces, and this became most apparent in their attempts to explain the causation of motion.

Descartes had defined motion in the strict sense as the transfer of a piece of matter from the vicinity of those bodies that are immediately in contact with it, which are considered at rest, to the vicinity of other bodies (VIII-1, 53), and he distinguished this kind of local motion from what he called the 'force or action' (*vis vel actio*) that causes

[26] *Journal des sçavans*, 18 March 1669, 21–4; the results were translated into English and republished in the *Philosophical Transactions* (12 April 1669), 925–8.

the motion. Local motion, as defined here, was understood as a mode of the body to which it was attributed in the same way that the shape of a body was understood as a mere mode that cannot exist apart from a shaped body. These definitions of 'local motion' and 'mode' sowed the seeds of Cartesian occasionalism and of subsequent disputes about the reality of forces, which were initiated by Louis de la Forge*.

La Forge distinguished two senses of 'motion'. He quoted Descartes's definition of local motion and concluded that, in that sense of the term, motion 'is only a mode that is not distinct from the body to which it belongs and can no more pass from one subject to another than the other modes of matter, nor can it belong to a spiritual substance' (1997, 145). The other sense of 'motion', the 'motive force [*force de mouvoir*], which transports a body from one vicinity to another . . . is not only distinct from this application but also from the body that . . . it moves' (1997, 145). La Forge relied on a conceptual analysis of force and extension to conclude that one is distinct from the other, at least in the sense that one could conceive of matter without any motion at all. This distinction, together with the Cartesian understanding of a real distinction, implied that the force or cause of all local motions originates in something other than matter.

> If the force that moves a body is distinct from the thing that is moved and if bodies alone can be moved, it follows clearly that no body can have the power of self-movement in itself. For if that were the case this force would not be distinct from the body, because no attribute or property is distinct from the thing to which it belongs. (1997, 145)

The classification of motive force as a mode was one of the controlling factors in this argument. The observation of collisions between bodies, especially between a moving body and a stationary one, seemed to indicate that motion is transferred by impact and, however that is to be explained, that one should not conceive of the motive force of a moving body as being similar to its shape (which is not transferable from one body to another).

La Forge concluded that God is the 'first, universal and total cause of motion' (1997, 147), and that collisions between bodies are merely occasions on which God transfers from one body to another some of the total quantity of motion that he assigned to matter at the time of creation. This occasionalist account was developed independently by Cordemoy (1968, 135–6), and it became one of the defining features of Malebranche's analysis of causation. Malebranche added further arguments to those already constructed by La Forge (whose work he had consulted). In particular, Malebranche focused on the concept of causation, from which Hume borrowed significantly. The Oratorian metaphysician defined a true cause as one such that 'the mind perceives a necessary connection between a cause and its effect' (1980, 450), because a genuine cause is efficacious enough to guarantee the production of its effect.[27] Without reviewing all the complementary arguments that Malebranche deployed in support of occasionalism, which included the inconceivability of genuine forces in material bodies,

[27] That was equivalent to having the force or power in itself to cause its effects: thus a true cause was 'a cause which acts by its own force' (Malebranche 1962–9, V, 66).

the primacy of divine causation, and the simplicity of the ways in which God's causation works (which, for Malebranche, implied the redundancy of secondary causes), occasionalists assumed that a genuine motive force could not or would not be added to matter as a type of reality that was distinct from local motion and was nonetheless capable of being redistributed among bodies when they collide with each other.[28] But that, in turn, depended on the conceptualization of motion with which they worked.

4.8 Conclusion

The tradition of classifying Descartes and his followers as rationalists has been so dominant in the history of philosophy that significant features of Cartesian natural philosophy have been underestimated. They include the hypothetical character of all explanations of natural phenomena, and the conceptual limits on the kind of theoretical entity that are acceptable in genuine explanations. Both resulted, to some extent, from the Cartesian critique of scholastic explanations, although there were also independent reasons that supported those conclusions. The total ban on so-called 'occult' properties—either because they were mere pseudo-explanations or because they were postulated entities that were not understood—encouraged natural philosophers in early modern France to focus on entities that could at least be imagined by analogy with observable phenomena. Jean Laporte described that conceptual and evidential dependence on familiar observations as a 'comprehensive and radical empiricism' (1945, 477).

One of its immediate implications was the conceptual reductionism that was clearly evident in the Cartesian concept of matter. Occasionalists offered no persuasive argument to show that God could not have endowed matter with a motive force, an attractive force, or any of the other kinds of theoretical entities that subsequent natural philosophers postulated in order to explain the phenomena that they observed. Even if one accepted that God is the ultimate source of all natural phenomena, including causal forces, it does not follow that he could not have shared causal efficacy with pieces of matter. God was also assumed to be the ultimate source of the existence of such bodies, but that did not imply that bodies fail to enjoy some kind of autonomous, dependent existence. By defining matter exclusively in terms of extension and by not tolerating even a conditional acceptance of forces in matter, the Cartesian revolution both liberated natural philosophy from the prodigality of scholastic entities and constrained its development in the closing decades of the seventeenth century. The mathematical sophistication of Newton's *Principles* and its explicit rejection of hypotheses ('*Hypotheses non fingo*') provided an effective methodological camouflage for re-introducing the forces that were required to explain motion—of planets as much as local bodies—and opened up a new phase in the history of the concept of matter and in the development of classical dynamics.

[28] For recent discussions, see Ott (2009) and Nadler (2011).

5

Theories of the Human Mind

'The mind is . . . so closely joined with it [the body] that together they form a single entity.'[1]

5.1 Introduction

Metaphysical dualism was so widely accepted in early modern France that it seemed like common sense. Despite the conviction and open hostility with which competing Christian churches disputed the theological doctrines that divided them, there was almost unanimous agreement about the existence of some purely spiritual entities or states. Thus Bodin reported, in *Demon-Mania*, that 'all the Academics, Peripatetics, Stoics, and Arab thinkers agree about the existence of spirits, so that to call it into doubt . . . would be to deny the principles of all Metaphysics' (1995, 46). Bodin expressed no doubts about a report that a guardian angel constantly accompanied one of his acquaintances, and he was similarly credulous about the activities of devils that adopted a human form and copulated with women. A more aggressively partisan Jesuit, François Garasse, rejected as foolish and evidently mistaken the suggestion that there are no purely spiritual creatures, such as angels and devils, or that the human soul is not immortal (1623, 793), and he provided an extensive discussion of the power of fallen angels and the reality of the hell to which they are eternally confined (1623, 835–75).[2] Neither author was a significant contributor to metaphysics or the philosophy of mind, but for that reason they may be seen as reporting accurately a belief that was so widespread that they could describe its denial as obviously wrong.

The near unanimity of belief in the existence of spiritual creatures, and of a purely spiritual Creator, was not matched by corresponding agreement about what was meant by the term 'spiritual'. There were a number of interrelated problems in any attempt to acquire knowledge of a purely spiritual or non-material reality, or to characterize accurately what is known about something when one knows only what it is not. That applied particularly within the scholastic tradition, which adopted the general principle that '*nihil est in intellectu quod prius non fuit in sensu*', or that all knowledge originates in sensation. For school philosophers, even the concept of a spiritual reality would have

[1] Descartes, *Meditations* (VII 15: M 17).

[2] Garasse defended the immortality of the human soul (1623, 876–901).

to be derived from sensory information, although it was impossible in principle to have a sensation of spiritual creatures. Those who accepted such epistemic limits usually resorted to defining spiritual creatures by negation, i.e., by saying they were non-material. That seemed to some critics at the time as merely deferring the problem of explaining how we come to have a concept of something that is incapable of falling within the scope of our senses.

Boyle provided a clear statement of this objection. He wrote in the *Christian Virtuoso* (Part 2) that 'immaterial' is not a name for another kind of reality with which we are acquainted but for something that, by definition or otherwise, is beyond the scope of human knowledge:

> For though superficial considerers take up with the vulgar definition, that a *spirit is an immaterial substance*, yet that leaves us exceedingly to seek, if we aim at satisfaction in particular inquiries. For it declares rather what the thing *is not*, than what *it is*; and is as little instructive a definition, as it would be to say, that *a curve line is not a strait one*, or a spiral line, etc. (1999/2000: XII, 474)

Boyle illustrated how uninformative such negative definitions were by reversing the definition of 'spiritual' and defining a body as an 'unspiritual substance'. If one knew only that a body is an unspiritual substance one would know very little about 'the distinct and particular natures of the sun, or a cloud, or of the stars, elements, minerals, plants, animals' (1999/2000: XII, 475).[3] Hobbes seems to have combined both objections when he argued, in *Leviathan*, that talk about immaterial substances is not so much uninformative as meaningless: 'if a man should talk to me of…*Immaterial Substances*…I should not say he were in an Errour; but that his words were without meaning; that is to say, Absurd' (2014, II: 68).

The definition of 'spiritual' as 'immaterial' was arguably informative, in some attenuated sense, if one had a clear concept of what is material. To the extent that the latter remained inadequately specified, however, the extension of its complement was not only equally vague but was potentially wrong. One of Descartes's Jesuit critics formulated that concern in the Seventh Objections to the *Meditations*. Bourdin explained his objection to Descartes's definition of 'immaterial' by inventing a story about a peasant who knew only four kinds of animal: an ox, horse, goat, and a donkey. When he saw something that looked like an animal but was not one of the four kinds with which he was already familiar, he argued: since it is not an ox, horse, goat or donkey, it must be a non-animal (VII 497). In a similar way, according to Bourdin, Descartes assumed that he knew all the properties of bodies and, when he encountered an unfamiliar property (such as thinking), he assumed that 'nothing belongs to the body apart from what

[3] Ralph Cudworth expressed a similar doubt, although he thought it could be mitigated by postulating atoms (the nature of which, he assumed, was conceived more clearly and provided a more reliable foil against which to define the immaterial): 'He that will undertake to prove that there is something else in the World besides Body, must first determine what Body is, for otherwise he will go about to prove that there is something besides *He-knows-not-what*' (1678, 49).

I previously understood belonged to it' (VII 497), and then concluded invalidly that thinking is not material. Thus, the description of some entity as non-material would be not only uninformative but also mistaken unless one already knew all the properties that bodies may have.

There was a third type of objection that surfaced somewhat indistinctly in Gassendi's objections to Descartes's *Meditations* but was already implicit in the widespread objections to all explanations that relied on scholastic forms and qualities, which were discussed in 4.3. That objection was that, insofar as anything that is capable of performing some function has a corresponding form, it is both true and trivial to describe the capacity as the possession of a form. If stomachs were said to have a digestive form, hearts a pulsific form, or human beings a thinking form, all those claims would be equally true and uninformative. What was needed, in each case, was an explanation of the relevant operations or functions, and those who responded to that challenge in France gradually came to realize that describing the mind as spiritual merely indicated that it does not exhibit some of the familiar properties that we characteristically associate with bodies. In the case of Descartes, especially, his dualism may be understood as an expression of the explanatory limits of the concept of matter with which he addressed questions about human nature.

5.2 The Soul in Scholastic Physics

Aristotle's short treatise *On the Soul* provided the concepts and the approach with which many Renaissance philosophers discussed the human soul. Aristotle's discussion was guided by an independent metaphysical view that every distinct reality is constituted by two principles, a formless matter and its complementary form, and that the form determines the specific type of reality that results from each matter–form combination. This assumption suggested that one could argue from knowledge of a given form to the distinctive properties of the thing in question or, in the opposite direction, from knowledge of properties to the kind of form that must support them. In the case of human beings, therefore, there was a well-established tradition among scholastics of identifying three degrees of living entities, vegetable, sentient, and thinking, and of associating these distinctive faculties with different kinds of 'soul' or with different functions of a single soul. The lowest degree of life was visible in mere plants, in which nutrition, growth, and reproduction were evident, and those properties could be explained by a vegetative soul. Animals displayed a higher degree of life in sensation and self-motion, and those features were assumed to require a sentient soul. Finally, the powers of understanding and reasoning were sufficiently distinct to justify postulating a higher level of soul, which was called rational. It was not necessary for animals to have two souls or for human beings to have three; it was a matter of predicating of each level of living creature a soul that was sufficiently complex to explain the functions that the relevant living creature displayed.

Those who worked within Aristotle's conceptual framework in early modern France continued to appeal to the categories and arguments that they inherited from the scholastic tradition. By doing so, they could not escape the apparent implications of the metaphysical system that they adopted—that the form of any entity ceases to exist when the corresponding entity no longer exists with its original observable features. Thus, if an animal dies, there is no reason to believe that its corpse continues to be informed by an animal soul, since the only basis for believing in the latter was an inference from observed features to what was apparently required to explain them when they were still present. Likewise, when a human being dies, it seems—according to Aristotle's metaphysics—that the distinctive rational soul that explains the higher levels of life that he or she previously exhibited should also die. That conclusion was supported by the very definition of a form, as a principle that was complementary to matter and was incapable of independent existence.

Pietro Pomponazzi (1462–1525) was a well-informed and subtle exponent of Aristotle's metaphysics; he was also well acquainted with the standard Christian commentaries on the Greek texts and with those written by Averroes and Avicenna. He accepted, as the most plausible conclusion of Aristotelian metaphysics, that every soul dies when the body that it informs dies. Pomponazzi argued accordingly that once the human soul is understood as an Aristotelian form, it begins and ends its life with that of the associated body: 'it is truly a form beginning with and ceasing to be with the body, nor can it in any way operate or exist without the body' (1948, 321–2). He rejected as 'absurdities and contrary to the principles of philosophy' the idea that the soul could be the form of a human being and that it could also exist as a 'self-subsistent individual' (1948, 321). He therefore argued that the most plausible philosophical conclusion about the human soul was that it is mortal. Nonetheless, he conceded that the immortality of the soul was 'an article of faith' (1948, 379) and agreed that Christians could put their trust in the infallible guide of revelation and canonical Scripture rather than the possibly misleading arguments of philosophers.

The Lateran Council (19 December 1513), however, had already condemned not only the Averroist concept of one universal soul but also those (such as Pomponazzi) who raised philosophical doubts about the immortality of each individual soul, and it invited Catholic philosophers to support their religious beliefs with philosophical arguments. Here again an excessively literal interpretation of various biblical texts (for example, about 'overcoming' death by living a Christian life) was combined with scholastic metaphysics, and the result was a religious belief expressed in a philosophical theory about the immortality of the soul. The Church then condemned as heretical any theory that did not agree with that interpretation.

> We condemn and reject all those who insist that the intellectual soul is mortal, or that it is only one among all human beings, and those who suggest doubts on this topic… And since truth cannot contradict truth, we define that every statement contrary to the enlightened truth of the faith is totally false and we strictly forbid teaching otherwise to be permitted. Moreover we strictly enjoin on each and every philosopher who teaches publicly… that when they explain or

address to their audience the principles or conclusions of philosophers, where these are known to deviate from the true faith—as in the assertion of the soul's mortality or of there being only one soul . . . —they are obliged to devote their every effort to clarify . . . the truth of the Christian religion, to teach it by convincing arguments . . . and to apply themselves to the full extent of their energies to refuting . . . the philosophers' opposing arguments. (Tanner 1990: I, 605–6)

This official teaching set the agenda for Catholic philosophers in early modern France. They had to find a way of combining the Christian belief in immortality with the implications of Aristotelian natural philosophy (since they were also obliged to adopt the Aristotelian metaphysics that had been integrated so fully into Christian doctrine that churches thought it was impossible to express the latter in an orthodox way without the former). Those who adopted the conceptual framework of Aristotle had traditionally addressed the status of the soul as a special part of physics, and that pattern was continued by many French philosophers. Francisco Sanches was typical of that tradition, and his medical training reinforced the assumption that any viable understanding of human faculties must include a reference to both the body and mind.

It is futile to say that the mind understands, just as it is to say that the mind hears. It is the *human being* who does both, using both body *and* mind in both instances, and performing any other action whatsoever with the aid of both of these at once. (1988, 262)

Eustace Asseline (Eustachius à Sancto Paulo) also addressed the nature of the soul in the 'Physics' part of his *Four-Part Summary of Philosophy* (1609), which Descartes acknowledged as one of the best contemporary textbooks of scholastic philosophy.[4] Eustace acknowledged that, although every soul is 'the form of a living body, and to that extent is part of the composite just like other forms' (1609: II, 254), the human soul is significantly different from other forms and must therefore be discussed in a special part of physics. Despite its special status and noble functions, however, Eustace embarked on an Aristotelian discussion of the three types (*species*) of soul—vegetative, sentient, or rational—which are distinguished by the kinds of operations of which the composite living things are capable (1609: II, 255, 266).

The philosophical difficulties that were unavoidable in this approach were evident from the beginning of the discussion. It was evident that there was some kind of hierarchy among types of living creatures, and that sentient creatures had capacities that plants lacked. But in both cases, Aristotelians assumed that these were powers of a material body. In contrast, Eustace claimed that the form of rational creatures was very different to the other two types because its operations were very much more noble (*multo nobilius*) than those of other forms. But that did not resolve the question whether a more noble operation implied a difference in degree of material complexity or a difference in kind in the corresponding souls.

Eustace rejected suggestions that the human soul is joined with some specific part of the body and accepted, on Aristotle's authority, that the concept of a soul implies that

[4] Eustace devoted Part Three of the Physics to 'The Animate Body' (1609: II, 254–455).

it is 'the act of an organic body rather than of some part of it' (1609: II, 260). In this context, he argued that the soul must be understood as informing every part of the body, including the arms, for otherwise they could not be said to be alive. But that seemed to imply that the soul, as the principle of life in a body, would die when the body dies. To avoid that conclusion, he set out to show that human souls are not divisible into parts. Eustace accepted that the souls of some plants and animals are divisible, because parts of some plants or animals may continue to live when separated from the original plant or animal. But, in contrast, the human soul is 'indivisible or unextended', which is adequately proved 'not only by reason but by faith itself' (1609: II, 276). The argument to support that conclusion, however, seemed to beg the question. Eustace argued:

> Since it must be accepted as a matter of faith, which reason itself supports, that the human soul is immortal and spiritual, and since it could not be spiritual and independent of matter and therefore could not be immortal unless it were unextended or indivisible, it follows that it is inconsistent with the faith and reason to claim that the intellectual soul is extended. (1609: II, 276)

This reasoned from the immortality of the soul to its spirituality, when one might have expected the argument to run in the opposite direction.

Eustace returned to this question in the Fourth Treatise, when he re-examined whether the rational soul is spiritual and immortal, and where he assumed that the fundamental principles of the Christian faith presuppose the truth of that thesis. On this occasion he provided what he called 'physical arguments' to refute pagans and heretics. The main argument was as follows:

> The nature of each thing corresponds to its operation, since operations result from natures. But the operations of a rational soul are superior to the nature and condition of body and matter. Therefore, a rational soul is not material and corporeal, but is immortal or spiritual. (1609: II, 413–14)

Eustace agreed that one could object to the minor premise, and he proved it by considering the operations of the intellect and the will. The intellect perceives common notions that are abstracted from parts of matter and it can form concepts of immaterial things, such as God or separated substances (e.g. angels that have no bodies). Since these concepts are not material, they must result from an immaterial power or form. Likewise, the will is capable of choosing virtues and of holding religious beliefs that are superior to what is material, and therefore it must be some kind of power or capacity of a higher order than the material. He concluded that it is easy to prove the immortality of the soul from its spirituality. 'Whatever is spiritual is immortal or incorruptible. But the rational soul has been shown above to be spiritual. Therefore it is incorruptible or immortal' (1609: II, 414).

These arguments gave the impression that, after death, separated human souls are distinct spiritual substances in their own right and, in that sense, are similar to angels

(which were understood in Christian theology as pure spirits). When Eustace addressed that question in the Third Disputation, therefore, he qualified the analogy between human souls and angels and clarified that separated human souls differ essentially from angels; they are 'parts of a whole that is essentially distinct from an angel, that is, of a human being' and they remain permanently apt to inform a body and to be substantially united with it (1609: II, 443–4). But this traditional scholastic compromise failed to explain why separated human souls were not what Eustace called 'integral substances that are totally and in every way complete' (1609: II, 443). If they existed without a human body, they had to be substances; and if they could not exist without a body, they could not be immortal. Eustace acknowledged that further questions about the soul would lead into theology, and he concluded with a prayer in which all praise, honour, and glory was rendered to God.

The fundamental dilemma that Eustace faced did not result from a lack of philosophical competence but from the concepts with which scholastic philosophy conceived of the human capacity for thought. These conceptual impediments persuaded other authors to reverse the priority of reason and faith, and to interpret the Lateran Council as teaching the immortality of the soul as an article of religious faith that could be supported, but not demonstrated, by philosophical arguments. That was the solution adopted especially by other French authors who were also sympathetic to scepticism, such as La Mothe le Vayer.

La Mothe le Vayer published a *Short Christian Discourse on the Immortality of the Soul* in 1637, in which he compared unfavourably the philosophical arguments that support the immortality of the soul with the certainty that results from religious faith. 'Science makes us see the certainty of something by means of our reason, which rarely succeeds without being challenged; the Faith does so with divine authority, which cannot be challenged' (1637, 143). The unreliability of philosophical arguments resulted, he argued, from the kind of evidence from which the immortality of the soul was deduced. La Mothe le Vayer distinguished between two kinds of demonstration—both of which were described as 'apodictic', although they differed in how certain they were. In one case, the principles from which one argues are subject to further challenge; in the other, one begins from premisses that are 'primary, necessary, eternal, and immediate' (1637, 100) because they do not rely on empirical evidence. Arguments about the nature of the human soul belong to physics and exemplify the first kind of demonstration because, even though the soul is immaterial, it is known only by means of its operations (1637, 101). For that reason, one must concede that supporting philosophical arguments are no more than that; they are not sufficiently convincing to provide an unchallengeable demonstration of the soul's immortality.

Despite these sceptical misgivings, La Mothe le Vayer summarized thirty-three arguments to show that the soul is spiritual and immortal. Many of those arguments were as unpersuasive as he acknowledged. For example, he argued that whatever moves by its own powers never ceases to move and is therefore immortal. But one of the characteristic properties of the soul is that it has the power in itself to move, and

therefore it must be immortal (1637, 82). He also repeated the argument that assumed the indivisibility of the soul. Since death is nothing other than the division of a body into parts, and the soul is indivisible, it cannot die (1637, 83). In summary, La Mothe le Vayer claimed that the thirty-three syllogisms provided any reasonable person with a convincing demonstration but, for the reasons mentioned above, it would be impossible to block all possible objections by those whom he described as stubborn. For that reason, one must rely ultimately on religious faith to conclude that the soul is immaterial.

La Mothe was as conscious of the decision of the Lateran Council as all of his contemporaries, and he distinguished between its condemnation of two heresies (the mortality of the soul, and the Averroist theory of one soul for all mankind)—which was a matter of faith—and its affirmation that the immortality of the soul could be known by reason (1637, 111)—which was a philosophical claim. In his view, the Lateran Council was not enforcing the philosophy of Aristotle and, even if one worked within that system, the kind of certainty that one might realize was less definitive that the certainty of the faith. This was consistent, he noted, with the traditional view that ignorant peasants are as likely to enter the kingdom of God as highly educated philosophers (1637, 123). His conclusion, then, was that philosophical arguments might persuade some reasonable people that the human soul is immortal, but if they fail he would commend them to God who could enlighten them. For that reason, he submitted his work to 'the corrections of the Church' in case he had written the slightest thing that was incompatible with its teaching (1637, 145).

5.3 Divine Conservation of Souls: Silhon

Jean de Silhon, who was a contemporary of La Mothe le Vayer, published two books in the early seventeenth century that discussed the immortality of the soul, *The Two Truths of Silhon, One concerning God . . . the other concerning the Immortality of the Soul* (1626), and *The Immortality of the Soul* (1634). Silhon argued that belief in the soul's immortality was essential for public order and morality; otherwise 'the political order and civil society, which flourish . . . by the just relation and faithful correspondence between the right of sovereigns and the duty of subjects, would soon disintegrate' (1634, 14). Silhon's arguments in support of the soul's immortality presupposed a proof of God's existence and a distinctive understanding of God's conservation of anything that he created. Surprisingly, he rejected the traditional scholastic argument that immaterial things are naturally immortal and, therefore, that the soul's immateriality would suffice to prove its immortality.

In *Two Truths*, Silhon claimed that immateriality does not imply incorruptibility and that materiality does not imply corruptibility, and he wished to demonstrate both by offering counter-examples to the assumed implications. Prime matter is by definition material and yet is incorruptible, he thought, and even some of the forms that scholastics described as emerging from prime matter were also eternal, such as

those that keep the heavens in motion. He also borrowed from theology the example of angels, which he understood as incorruptible but not necessarily incorporeal. His example of a corruptible spiritual entity was also borrowed from theology—the state of grace that, according to Christians, was destroyed by mortal sin (1991, 126). Silhon assumed that a state of grace is incompatible with being in a state of mortal sin and that it would be a useless exercise on God's part to conserve artificially a state of the soul that is incapable of performing the operations for which it is essentially dedicated (1991, 131) because those in a state of sin cannot do anything that is beneficial to their salvation. Thus, an immaterial condition of the soul is not necessarily incorruptible. Even if those examples are less than persuasive, especially for philosophers who did not share his religious beliefs or his scholastic assumptions, Silhon could have begun his discussion simply by not assuming that immateriality implies immortality, and by seeking some other reason to conclude that the human soul is incorruptible.

The main argument hinged on a theory of how the divine conservation of created things is contingent on God's intentions for each type of entity. He claimed, in advance, that the argument he was about to present would be so convincing that 'the most savage and stupid intellects are bound to accept it' (1991, 127). The argument was as follows. Everything that exists continues to exist only because of divine concurrence and, if the latter were removed, it would lapse into nothingness. Secondly, God can keep human souls in existence indefinitely, because no more effort is required on his part to conserve things than to have originally created them. The question, then, about the continued existence of human souls after death depends on whether God intends to preserve them in existence eternally.

Rather than provide the kind of evidence required, however, Silhon initially claimed that the burden of proof was on those who denied that God intended to preserve human souls in existence 'when they separate from the body' (1991, 129). That assumed that the soul is some kind of independent entity whose continued existence after death is subject to a divine decision. When Silhon raised the same question about divine intentions about the souls of animals, he realized that he had to distinguish between the two kinds of soul to discern the alternative divine plans that apply to them. He then argued as follows. Since God created each type of thing, one must assume that he had specific intentions about the functions that were assigned to them. These intentions may be read from the observable functions of natural things. One must also assume that God does not wish anything in nature to be useless, and that his continued conservation of each thing is contingent on its continued capacity to fulfill its natural functions.

When this is applied to animals, it is clear that the total and complete immediate objective of animal souls consists in the vegetative and sensory operations that they make possible. But these operations depend essentially on the assistance of bodily organs. Once these organs cease to function adequately, therefore, it would be redundant for God to preserve in existence an animal's soul that could no longer fulfill its

natural functions. One may conclude, therefore, that animal souls are annihilated by the withdrawal of divine concurrence when an animal dies.

Silhon thus focused his argument in support of the immortality of human souls on evidence that would show that human souls engage in operations that are independent of bodily organs and, if God were not to conserve them in existence after the death of the body, he would be frustrating natural operations that are characteristic of one of his creations:

> If the soul has within itself an ability and power to act that is completely independent [of bodily organs], with which it operates much more nobly and excellently than when it operates with bodily organs, one must admit that since God conserves it in the body as long as it can produce bodily operations that are lower and more like those that occur in animals, he will also conserve the soul eternally outside the body if it is capable of producing operations that are of a higher order and are more worthy of its condition. (1991, 132)

That argument assumed that the superior operations that characterized the human soul occur independently of bodily organs and, since souls do not need such organs to function, it would involve a change of mind on God's part if they ceased to operate after the death of the body. Silhon thus had to rest his argument on some familiar descriptions of mental activities that were apparently independent of the body. When introducing them, he seemed once more to beg the question by describing the soul as a simple substance or essence (1991, 132).

Silhon borrows from the Lateran Council the analogy between a human intellect and that of angels. The core of the argument was that some objects of human knowledge are spiritual or are abstracted from matter, and since the power of human souls is equal to that of angels with respect to the scope of the objects to which it applies, it is also equally independent of matter for similar operations. One of the examples offered was the capacity of human intellects to think about purely spiritual objects that lie outside the scope or competence of the senses (1991, 135). Another example he used was the ability to conceive of abstract objects:

> Our soul disentangles and abstracts one species or common nature from many individuals, and… purifies it of its sensible conditions… I claim that these abstractions and these separations more than probably exceed the capacity of every bodily power and that they should be attributed to a spiritual principle. The soul, therefore, is the only principle of such operations. (1991, 139)

Silhon's appeal to what was 'more than probably' true illustrates the uncertainty of the argument and its failure even to convince its author. He concluded the Second Discourse with a similarly inconclusive appeal to divine wisdom, which allegedly matches natural desires with the kind of satisfaction towards which they tend. Human beings have a natural desire for happiness, which cannot be satisfied adequately in this life. 'Let us conclude therefore that it will be satisfied in the afterlife' (1991, 141).

Silhon's arguments relied on a familiar scholastic distinction between the inferior powers of animal intelligence and the superior power and assumed spirituality of

human intelligence. But that failed to address the type of objection that Gassendi subsequently addressed to Descartes, concerning the extent to which animal behaviour and intelligence may differ only in degree from their human counterparts.

5.4 Gassendi's Theory

Pierre Gassendi wrote extensively about the human mind or soul in two different contexts. One was in 1641, when he composed the fifth objections to a draft version of Descartes's *Meditations*, which he expanded and re-issued in 1644 as the *Metaphysical Disquisition* (Gassendi 1962); the second was in his major work, the *Syntagma*, which was published posthumously in 1658. Gassendi accepted in both contexts, as a matter of religious faith, that the human soul is spiritual and immortal. In contrast with his expressions of faith, however, which seemed to have been unchanging, the philosophical opinion that he appeared to favour in the critique of Descartes was the opposite of what he explicitly proposed in the *Syntagma*. Because of this tension within his writings, he has been understood as: (a) rejecting the traditional theory of a spiritual soul—because it is incompatible with the fundamental assumptions of atomism—and simulating a belief in the spirituality of human souls to avoid condemnation by his church and the loss of salary that would result from losing his benefice in Digne; or (b) accepting that atomism or natural philosophy cannot resolve the question satisfactorily, and believing in the spirituality and immortality of the human soul as a religious doctrine.

There was another reason—apart from the apparent inconsistency between the objections to Descartes and the theory adopted in the *Syntagma*—for uncertainty about Gassendi's account of the human mind or soul. Gassendi's writing style may have been adopted intentionally to signal his appreciation of the role of history in the rhetorical presentation of philosophical views, in contrast with the systematic and allegedly dogmatic presentation of others (Joy 1987). His readers, however, still find it difficult to identify what Gassendi himself thought about any given issue when compared with the many disparate sources from which he quoted. Richard Westfall summed up his frustration as a reader by describing the *Syntagma* as 'an unreadable compilation of everything ever said on the topics discussed', and described the author as 'the original scissors and paste man' whose 'book contains all the inconsistencies of eclectic compilations' (1977, 39). Another more sympathetic reader described him as 'uncompromisingly pedestrian, matching citation with citation, even pausing at times to discuss the merits of various textual readings' (Jones 1989, 175). Gassendi's style of reporting opinions that were borrowed from a wide range of inconsistent sources suggests a third possible interpretation of his extensive discussions—that he had no settled opinion about the nature of the human mind and that he explored or expressed different arguments on different occasions.

Gassendi acknowledged at the outset of his objections to Descartes's *Meditations* that he accepted the 'existence of God and the immortality of our souls', although the

term he used to describe this admission (*profiteor*) had connotations of professing a religious belief rather than being persuaded by reason. It seems beyond question that he was not convinced that Descartes's arguments were persuasive (VII 257),[5] and he may have agreed (at least in May 1641) with La Mothe le Vayer that only religious faith provided certainty about the human mind and God. Nonetheless, whatever his personal religious convictions may have been, Gassendi's objections were still significant because of the philosophical questions that they raised about the kind of substance dualism that he attributed to Descartes.

Gassendi's fundamental objection was that Descartes seemed to assume, rather than prove, that 'the power of thinking is so far beyond corporeal nature that neither spirit nor any other mobile, pure, and rarified body could be disposed in such a way that it would be made capable of thinking' (VII 262). This was the core of his objection, to which he often returned:

> I must repeat the objection that you have to prove that it is inconsistent with the nature of body to be capable of thought. Thus you would be begging the question that you asked—whether or not you were a rarefied body—by assuming that to think is inconsistent with being a body. (VII 337)

This objection hinged on what he thought would be required to have the knowledge of the self that Descartes claimed to have acquired by reflecting on his experience of sensing, remembering, etc. It seemed obvious that Descartes was thinking, but that provided no understanding of the 'inner substance' (VII 276) that had the property of thinking. Gassendi illustrated the query by analogy with knowledge about wine, which is discussed above in 3.2. Nothing new is known about wine if one merely links its familiar observable properties (e.g. that it is a liquid, red or white, etc.) with a 'hidden substance' about which nothing more is known apart from the fact that it has those observable, familiar properties. Gassendi argued that we begin to understand wine—or human thinking—only when we understand something about the hidden causes of observable properties.

Gassendi had thus accurately identified the weak link in the scholastic argument that Descartes seemed to have shared with Eustace and Silhon, namely that human thinking and the knowledge and memory that animals display are so radically different that human beings must have an immaterial soul while the apparently intelligent behaviour of animals, which was equally poorly understood, could be explained by postulating merely a sentient soul. What Descartes needed to do was to identify some mental operation in human beings that does not depend on the brain: 'you ought to exercise some operation that is different from what animals exercise, one that occurs at least independently of the brain if not without the brain' (VII 269). But of course Descartes had failed to identify any mental operation that occurs without accompanying brain

[5] He repeats later: 'I always raise these objections, not because I am doubting the conclusion that you intend, but because I am not convinced about the force of the demonstration that you provided' (VII 343).

functions. Nor would it have helped, according to Gassendi, if one claimed that animals lack reason or that they do not engage in making inferences. Gassendi conceded that they lack 'human reason', but not the kind that is appropriate for animals; and although they do not employ the same kind of arguments as human beings, the difference between their reasoning and ours is merely a matter of 'more and less' (VII 271). In fact, the similarity between human and animal mental operations is such, he argued, that Descartes ought to have concluded that if human souls are incorporeal, so also are those of animals (VII 262).

Even if one adopted, for the sake of argument, the hypothesis of a spiritual soul, Gassendi raised the fundamental objection about how that assumption would provide an explanation of the mental operations that it was intended to explain unless a proponent of dualism also explained how mind and body interact. Descartes had acknowledged in the draft of the Sixth Meditation—on which Gassendi was offering prepublication comments—that sensations such as pain, hunger, or thirst are such that he could not think of the mind–body relation by analogy with a pilot in a ship, and that he would have to conceive of mind and body as being so intimately related that they might be described in terms of a union and thorough mixing together (*unione et quasi permixtione mentis cum corpore*: VII 81).[6] The metaphor of thorough mixing may have been appropriate, but it failed to explain how something that was allegedly immaterial could be joined and interact with something else that was clearly material:

> It remains to be explained how that 'conjunction and quasi mixture' or 'confusion' can be compatible with you, if you are incorporeal, unextended, and indivisible? . . . How indeed can the composition, union or conjunction of something corporeal with what is incorporeal be understood? (VII 344)

Gassendi acknowledged that this issue was as mysterious to him as the simultaneous presence in many parts of the world of the body of Christ in the Eucharist—which he accepted as a sacred mystery (VII 340)—but the question that Descartes addressed was about some natural reality rather than a mystery of faith, and he was supposed to be explaining it by using the light of reason rather than the authority of revelation.

Gassendi subsequently discussed human nature in Part II of the *Syntagma*, Section III (later part),[7] where he defended a version of the scholastic dualism that he attributed to Descartes. He initially distinguished the soul of animals from that of human beings so as to be free to discuss the immortality of the mind without fear of making a

[6] Zabarella (1617, 919) attributed this metaphor of a pilot and a ship to Averroes: 'According to Averroes, the rational soul is like a sailor, who arrives in a boat that is already built and provides a human being with the outstanding operation which is to contemplate and understand, whereas the sailor who steers a boat gives it the act of navigation.'

[7] Book III concerns the soul in general, Books VI and VII discuss sensation, Book IX was devoted to the intellect or mind, and Book XIV to the immortality of souls (1658: II, 237–658).

mistake. An animal soul 'seems to be something such that, when it is in a body, an animal is said to live, and when the soul leaves it is said to die' (1658: II, 250a). He rejected the common view of peripatetics that the soul was some kind of substance, which was 'educed' from matter rather than created from nothing. Instead he supported the theory that it appeared to be 'some very tenuous substance . . . with a special disposition or habitude and symmetry of parts, which lives within the larger mass of a body' (1658: II, 250b). Gassendi describes this subtle matter as being of such a subtle texture and so mobile that, when compared with other parts of a body, it could almost be said to be incorporeal.

While Gassendi quoted with approval the traditional division of souls into vegetative, sentient, and intellectual, and reviewed the opinions of various philosophers, he also adverted to the decisions of the Lateran Council and the prior Council of Vienne. They had both condemned Averroist theories, which denied that each human being has an individual soul that is truly the form of the body. He concluded that there was only one acceptable opinion about the human soul:

> That the human soul is composed of two parts, namely the irrational part which includes the vegetative and sentient souls, which is corporeal and originates from parents, and is like a medium or link that joins the rational soul to the body; and the rational or intellectual soul, which is incorporeal, is created by God, and is infused into and united with the body as a true form. (1658, 256a–b)

Gassendi elsewhere describes these two parts of the human soul as the *anima* (lower part) and the *animus* (the rational soul).

At the outset of chapter IV, which was concerned with the nature of the human soul, Gassendi explicitly rejected the view with which he had previously challenged Descartes, namely that there is merely a difference of degree (*secundum magis & minus*) between human souls and the souls of animals (1658: II, 255a). He rejected the views of Plato and Aristotle and endorsed instead the opinion of 'the holy faith':

> We say that the mind [*mens*] or that superior part of the soul (which is rational in the proper sense and is singular in each human being) is an incorporeal substance, which is created by God and infused into the body so that it functions there as an informing form and not simply as an assisting form. (1658: II, 440a)

This was precisely the view that he had attributed to Descartes in his objections to the *Meditations* and which he had rejected in 1641. Gassendi went on to acknowledge the familiar objection: 'how can an incorporeal thing be joined with a body; how can it function as more than an assisting principle and be capable of being an informing form?' (1658: II, 443b). He suggested that the rational soul is not joined directly with the body but is joined initially with the sentient and vegetative soul and, only through that intermediary, with the body. But he conceded immediately that such an intermediary is still a body, and that no matter how subtle it may be, it is still matter and is infinitely different from an incorporeal form.

When Gassendi discusses the immortality of the soul in Book XIV, chapter 2, of the *Syntagma*, he dispels all errors and conflicting opinions by appeal to the light of faith:

> In every individual human being there is a singular rational and incorporeal soul, which is created by God and infused into the body so that it functions there as informing and not merely assisting; after death, however, it survives or it continues to be immortal. (1658: II, 627a)

Gassendi conceded that he had not provided what he described as a 'mathematical' proof of the soul's immortality, but that the philosophical arguments, when added to the authority of the faith, acquire a weight and force that provided a defence against those who objected to it (1658: II, 650a). He repeated the doctrine that each soul is rewarded by happiness in heaven or by punishment in hell, depending on how the person of whom it was the form had lived their life on earth, and that it would recover its original body at the general resurrection of the dead. The main argument offered, in support of this religious belief, was the familiar scholastic thesis that the rational soul is immaterial and is therefore immortal, because it lacks any parts into which it could divide (1658: II, 628a).

Gassendi seems to have made no progress beyond admitting that he believed in the spirituality and immortality of the human soul as religious doctrines, while also accepting that the evidence of animal intelligence and the Aristotelian concept of a form both pointed towards the conclusion that human mental operations result from the complexity of the human brain.

5.5 Descartes's Theory of Mind

The printing history of *Meditations on First Philosophy* is relevant to understanding the philosophical objectives of the author and the compromises that he accepted in the interests of avoiding possible ecclesiastical censure. Descartes was living in Santpoort when he first mentioned that he had prepared a short discourse on metaphysics and that he hoped to print twenty or thirty draft copies locally (in the United Provinces) that he could post to Mersenne in Paris. He moved to Leiden in April 1640, with a revised plan to print a limited edition of the *Meditations* there, but he subsequently asked Mersenne to circulate copies of a draft text on metaphysics among Catholic theologians and to request comments from them prior to publication—to which he intended to reply, so that their comments and his replies might be printed together in the eventual publication. During the short period he lived in Leiden, three of Descartes's relatives died: his daughter Francine, his sister Jeanne, and his father Joachim. In April 1641, Descartes moved again, this time to Endegeest. Meanwhile, he had given Mersenne some latitude to edit the final text, since it was to be published in Paris and it was easier for Mersenne than Descartes to reply to last minute queries from the printer. While Descartes changed residence twice, coped with family bereavements, and changed plans about where to publish his essay on metaphysics, he was

receiving written objections by post that Mersenne had collected, was writing replies as they arrived in the United Provinces, and was sending his replies back to Mersenne in Paris.

Mersenne, as an ardent Catholic apologist, was one of those who had importuned Descartes for some years to publish his 'metaphysics'. Descartes was reluctant to do so because of the overlap between metaphysics—which he understood as a discussion of questions that pertain to the human soul and God—and theology, and the possible repercussions from theologians who might disagree with whatever he wrote. Once he agreed to publish an essay on metaphysics, therefore, he tried to insulate his work against possible objections by replying to theological objections even in the first edition, and by requesting the prior approval of the theology faculty at the Sorbonne. Accordingly, Descartes wrote to Mersenne in November 1640, and included a dedication of his book to the Sorbonne. He asked the Minim friar to copy the dedication by hand and to submit it to the Sorbonne together with as many printed copies of the draft text as a committee of theologians might require in order to approve it. He also thanked Mersenne for various suggestions about omitting some sentences about transubstantiation if he thought that might help get the theologians' approval that he so much wished to receive.

Not surprisingly, then, Descartes's dedication to the Sorbonne theologians mentioned explicitly the decision of the Lateran Council that overshadowed all discussion by Catholic philosophers of the period in France:

> As regards the soul, many people thought that its nature cannot easily be investigated, and some have even dared to say that human reason shows us that the soul dies with the body and that the contrary view is held by faith alone; however, the Lateran Council, which was held under Leo X (Session 8), condemns them and explicitly commands Christian philosophers to defeat their arguments and prove the truth to the best of their abilities, and therefore I too have not hesitated to take on this challenge. (VII 2–3: M 9)

Although Descartes was supporting what he called 'the cause of God and religion', although he had acknowledged Rome's injunction to Catholic philosophers, had submitted his text for prior approval by French theologians and had edited it to avoid theological controversy, it still failed to get the approval of the Sorbonne. The timing of his failed request and the printer's schedule resulted in the title page of the first edition including the misleading phrase '*cum approbatione doctorum*' (with the approval of [Sorbonne] doctors). The title page also included a subtitle that was due to Mersenne rather than to Descartes: '*in which the existence of God and the immortality of the soul is* [sic] *demonstrated*'. In the second corrected edition, which Descartes published in Amsterdam, the subtitle read: '*in which the existence of God and the distinction of the human soul from the body are demonstrated*'. The change in subtitle was very intentional. Descartes had written to Mersenne, even prior to the publication of the first edition, that he should not be surprised if he found not 'one word about the immortality of the soul' (III 265–6) in his book, because he had only shown that the soul is completely

distinct from the body and therefore is not naturally subject to death, although it was still possible for God to annihilate it.[8]

It was impossible for Descartes, or for anyone else, to have assumed the challenge presented by the Lateran Council without lapsing into some kind of dualism, and it remains only to see what kind of dualism he proposed and what arguments he deployed in the cause of God and religion. His primary objective was to demonstrate the distinction of the mind from the body or of mental properties from corporeal properties, and the meaning of his conclusion would be determined by the extent to which it seemed impossible to explain mental operations by the known properties of bodies.

Descartes accepted that some kind of brain events must be responsible for imagination and memory, and the extremely speculative character of his attempted explanations of those capacities did not detract from their subsequent use in discussions about thought and reason. He assumed as early as the 1620s that when stimuli affect the external senses, their impact on the eyes, ears, etc. is transmitted along nerve connections to a central part of the brain and that the patterns or shapes with which the brain is affected constitute physical ideas (*ideas vel figuras*: X 414). This, he thought, would explain 'how all the motions of other animals can occur, even granting that there is absolutely no knowledge of things in them . . . and how all the operations that we perform without assistance from reason occur in ourselves' (X 415: D 154).

Descartes later developed this account by including the role of animal spirits, which were conceived as extremely fine material that flowed through very thin ducts throughout the body and performed the functions that we would attribute today to nerve connections. He also hypothesized that animal spirits flow out of the pineal gland in the brain and that they do so in patterns that correspond in some sense to the openings in the nerve ducts that are triggered by sensory stimuli. By combining the effects of incoming signals and spontaneous flows of animal spirits from the gland, Descartes suggested in the unpublished *Treatise on Man* that it would be appropriate to think of the 'forms or figures' (*formes ou images*: XI 177) in the flow patterns of animal spirits as ideas. This provided an equally speculative explanation of what happens in the brain when we imagine something or remember it. In each case, the formation of these patterns in the flows of animal spirits could be caused by various conditions of the brain that trigger them—especially when someone is asleep and their brain functions are not dominated by external stimuli—or by the disposition of nerve ducts to re-open more easily, as a result of frequent cases of prior openings in similar patterns, which Descartes called memory. This relied on an unexplained concept of a disposition to re-open in channels in the brain, and that in turn was borrowed from the experience of bending something flexible or manipulating something repeatedly

[8] He confirmed that interpretation on 28 January 1641, when he was already considering a corrected edition, and offered a revised title for the Second Meditation, 'so that people will not think that I wished to prove its [the soul's] immortality there' (III 297).

so that the effort required to do so is reduced. He speculated that the impressions stored in memory might be like 'the folds made in a piece of paper or a piece of cloth [which] make it easier to fold it again subsequently in the same way once it has been folded' (IV 114–15).

Without suggesting that memory requires the storage of little pictures or images in the brain, therefore, but still assuming that something must be stored there to explain memories of past events, Descartes proposed that memory is nothing more than dispositions of animal spirits to flow more easily, and in similar ways, into passages in the brain that had been opened repeatedly (or at least on one previous occasion) by a stimulated sensory organ.[9]

> [T]hese patterns are no longer easily erased, but are preserved in such a way that the ideas that were previously on this gland can be formed again long afterwards without requiring the presence of the objects to which they correspond. And this is what memory consists in. (XI 178: W 150)

The extremely speculative physiological details of this hypothesis are irrelevant to the fundamental assumption on which they are based, namely that there must be movements of matter of some kind in the brain that correspond, one to one, with each distinct memory that we store and that subsequent brain research would have to discover what those precise instances of matter-in-motion are.

Descartes was well aware that similar kinds of perceptions and stored memories occur in the brains of non-human animals and that dogs, for example, evidently remember who their owner or minder is, where they usually live, etc. The issue that Descartes then addressed was whether the kinds of brain events that human and non-human animals share could, at least in principle, explain human thought. His negative answer was less categorical than one might expect, and it was a question to which he returned on a number of occasions.

Descartes had offered readers of the *Discourse on Method* a summary of some issues in physiology that he had discussed at greater length in the unpublished manuscript of *The World*, including his alternative explanation of blood circulation that did not assume some kind of unexplained pulsific power in the heart. Without revealing most of the details in 1637—which came to light only posthumously—he claimed to have developed an account of the brain that explained, among other things, (i) how 'external objects can impress different ideas on it through the senses', (ii) how 'ideas' are received in the part of the brain that functions as 'common sense', and (iii) which part of the brain should be identified as the 'memory, which stores the ideas' (VII 55). Such a comprehensive account suggested that if an artificial animal were fabricated and were sufficiently similar to a natural animal—for example, an automaton that looked like a monkey—it would be very difficult to distinguish one from the other. But it would not be similarly difficult to distinguish a genuine human being from an automaton, no

[9] For a detailed account, see Clarke (2003) and Sutton (1998).

matter how sophisticated the latter might be, for there were two criteria by which they could be distinguished, the first of which was an automaton's inability to use language as we do.

> The first is that they [i.e. automata] would never be able to use speech, or other signs composed by themselves, as we do to express our thoughts to others. For one could easily conceive of a machine that is made in such a way that it utters words, and even that it would utter some words in response to physical actions that cause a change in its organs—for example, if someone touched it in a particular place, it would ask what one wished to say to it, or if it were touched somewhere else, it would cry out that it was being hurt, and so on. But it could not arrange words in different ways to reply to the meaning of everything that is said in its presence, as even the most unintelligent human beings can do. (VII 56–7: D 40)

This argument assumes that we use language to express our thoughts to others and it would beg the question if 'thought' were defined in such a way that only human beings could have thoughts to express. But the argument may be read without that assumption, as a commentary on the relative limitations of any machine that uses language.

Descartes had already accepted that some animals are sensitive to a wide range of external stimuli, that their brains can store 'ideas', and even that they can increase the range of stimuli to which they naturally respond by conditioning. He also accepted that since a machine could respond to external stimuli that cause a change in its sensors, it could respond to strings of words in much the same way as trained dogs respond to instructions. Since Descartes understood the hearing of words as small particles of matter impinging on sensory organs in the ear, it would not be impossible in principle to develop machines that could respond in a programmed way to linguistic stimuli. All it would need would be sufficiently sensitive receptors and adequate processing power. Even if an animal machine were not stimulated by an appropriate external stimulus, it might also utter words if it were stimulated internally by states of the machine that correspond to the malfunctions that we experience as pains or other internal sensations. Thus a machine could also be programmed to use words to alert people to its internal states. In that case, however, the words would function only in the same way as cries of pain or expressions of hunger, thirst, etc. do in animals, which Descartes called 'natural signs' in contrast with the purely conventional signs that are used in human languages. 'One should not confuse words with the natural movements that express passions and that can be imitated by machines and animals' (VI 58: D 41).

Gassendi was familiar with that argument (from 1637) when he formulated his objections to the draft text of the *Meditations* in 1641, but it did not impress him. He conceded that animals do not use human words, since they are not human, but he claimed that they speak 'their own words and use them as we use ours' (VII 271), and that it was unfair to demand that they use human words while failing to consider the appropriateness of their own language to the kind of creatures they are. Descartes was therefore aware of the need to explain better the distinction between the use of words by animals and by human beings. But, in 1641, he simply rejected Gassendi's objections.

He returned to the same topic, however, in correspondence with the Marquess of Newcastle in 1646. Newcastle was interested in training horses (Newcastle, 1658) and he wrote to Descartes to ask whether animals such as horses might have an ability to think. Although the letter arrived in Egmond-Binnen almost ten months later, Descartes replied with one of his clearest analyses of why he was reluctant to accept the thesis about animal thought. In doing so, he mentioned two earlier French authors who had written favourably about animal intelligence, Montaigne and Charron.

Montaigne had argued, in the *Essays*, that the behaviour of animals is similar to human behaviour and, in many cases, is superior to it. He cited examples from ancient sources and from his own experience of a dog that reasoned by disjunction, various species of birds that speak, oxen that could count up to a hundred, and even elephants who danced in harmony with musical tunes. When he compared some uncivilized men with some animals, he concluded that 'there is a greater difference between one man and another than between some men and some beasts' (1991, 520). He was so impressed by the uniformity of nature and by the intelligence displayed by some animals that he argued that animals must have similar faculties to humans if they exhibit similar behaviour. 'From similar effects we should conclude that there are similar faculties. Consequently, we should admit that animals employ the same method and the same reasoning as ourselves when we do anything' (1991, 514).

Charron appealed to a similar argument, which he seems to have borrowed (like much else) from Montaigne. He conceded that we do not understand animal language; but we do not understand most human languages either, although we do not decide that people from other nations do not use a language simply because we fail to understand them. Mutual incomprehension is familiar among human languages, and the same is true when human and animal languages are compared.

> Just as we speak by gestures and by moving our eyes, our head, our hands, and our shoulders… animals do the same, as we observe in those that have no voice but nonetheless engage in mutual exchanges; and just as animals understand us to some extent, we likewise understand them… We speak to them, and they speak to us, and if we do not understand each other perfectly, who is responsible for that?… They could easily judge, by the same reasoning by which we judge them, that we are animals. (1986, 209)

Montaigne and Charron, just like Gassendi, thus emphasized the similarities between animal behaviour (including their use of language) and human behaviour. But Descartes rejected those arguments and told Newcastle that he could not 'share the opinion of Montaigne and others who attribute understanding or thought to animals' (IV 573).

Descartes conceded that the behaviour of animals may surpass that of human beings in various ways and, if one examined only human behaviour, it would be impossible to conclude that human bodies are anything more than self-moving machines or that they also include 'a soul that has thoughts' unless one also considered 'spoken words or other signs that are made about various issues with which they are presented and

which are not related to any passion' (IV 574). Descartes argued that the words spoken by animals are directly linked, mechanically, to one of their passions or sensations and that the training of animals exploits their natural passions to condition new responses, even verbal responses, to their passion for food, etc. There was never any animal, he argued, that was so perfect that it used words that were not linked with their passions and could not therefore be explained by some kind of animal conditioning. This was the same argument that had been used in the *Discourse on Method*, and it hinged on the total number of possible responses that could be programmed or trained into an animal machine to provide the indefinitely large number of rational responses that are available in the human use of language.

The Cartesian argument could be made explicit as follows. In all cases in which there is a constant conjunction between two kinds of event, one may assume that there is a causal connection between them, even if we can do no more than guess what that connection is. Such constant conjunctions are, at least in principle, open to the possibility of mechanical explanation and modelling. But the range of rational responses in human language is so wide that it would be extremely unlikely that any finite brain could store all the possible linguistic responses that would make sense. As he wrote to More in 1649, 'no brute animal has so far ever been observed that reached a level of perfection at which it used genuine speech, that is, by indicating something by its voice or signs that could be referred exclusively to thought and not to some natural impulse' (V 278: M 174). Since animals can make sounds that mimic human speech but never exhibit the flexibility that characterizes human speech, that provides 'a strong argument to prove that the reason animals do not speak as we do is that they have no thought rather than that they lack the organs' required (IV 575).

Nonetheless, Descartes did concede for the first time that animals may engage in some kind of thought, 'even if their thought is much less perfect' than human thought (V 576). The uncertainty of the conclusion is reinforced by the implications of attributing immortal souls to every animal that could exhibit any behaviour that was comparable to human behaviour. But that animals have immortal souls is not 'likely [*vray-semblable*] because there is no reason to believe that it is true of some animals without believing it is true of all of them' (V 576), and some of them are so imperfect—such as oysters and sponges—that it is incredible that they have immortal souls. Having acknowledged the main premise of his opponents' argument—that there are variations in degrees of perfection in the behaviour of animals and human beings—and that most of the behaviour of animals and human beings (for example, 'when we often walk or eat without thinking at all of what we are doing': V 573) can be explained simply in terms of brain events, it required a more convincing argument to justify introducing an immortal soul for those items of human behaviour that seemed otherwise inexplicable, and it also required some account of how such a soul could provide the kind of explanation that he otherwise lacked. This was grudgingly acknowledged in the conclusion he later sent to Henry More: 'Although I think it . . . cannot be proved that there is any thought in brute animals, I do not think that it is therefore possible to prove that

there is none, because the human mind does not reach into their innermost lives' (V 276: M 173).

Other contemporary French philosophers used a similar argument about the indefinitely wide range of meaningful linguistic behaviour to the same effect. Pierre Chanet (*c.*1603–166?), in *The Instinct and Knowledge of Animals*, defined an instinct as the general direction by which the first cause (God) guides secondary causes to realize specific objectives for which they lack a dedicated natural faculty. If instinct were understood in that way, Chanet denied that it could explain all animal behaviour.

> Thus we do not attribute all the actions of animals to instinct. We know that they have whatever faculties they need for most of their operations; that they have some faculties in common with plants; that they have as many external senses as we have; that they also have an imagination, a memory, and a faculty for moving; that, without instinct, they know, they remember, and are capable of learning. (1646, 4)

Despite acknowledging that animals have such a variety of specific faculties, Chanet argued that they do not use language as we do because the words they utter are natural signs of their passions in contrast with human words, which are conventional signs. 'A word is some kind of sign or gesture that is not natural and that has no other meaning apart from what has been imposed on it by the agreement . . . of those who use it' (1646, 162). Thus, although animals may communicate by making sounds, they are not using a language any more than babies who cry or smile use a language, although they certainly communicate their distress or joy to those who can interpret their natural signs of those passions (1646, 165).

Chanet's central argument could have been used without amendment by Descartes.

> Animals do not speak at all, because the variety in their vocal sounds results from nature and not from convention. Secondly, they express their passions by this variety without having any intention of expressing them. Thus our question is not whether animals make known their thoughts and the diversity of their passions by their voice, or by means of other signs, because we are agreed that they do so; but we deny that they use these signs intentionally [*à dessein*] to express their thoughts, and that they know that these are signs and means by which they can make themselves understood. (1646, 163)

The distinction between natural signs, which are causally related to the realities of which they are signs, and conventional signs that function because human agreement attaches them arbitrarily to their referents, continued to be associated in subsequent discussions in France with the distinction between animals and human beings. For example, Arnauld and Nicole distinguished in the *Port Royal Logic* (1662) between 'natural signs, which do not depend on human fancy', and other signs 'that are only instituted or conventional' and which may bear no relation to the things they symbolize (1996, 36–7).

In addition to the argument based on language, Descartes introduced a second criterion in the *Discourse* by which one could determine that an animal machine was not

genuinely human. Even if machines performed some operations much better than us, they would infallibly fail in performing other actions because they would not 'act on the basis of knowledge, but merely as a result of the disposition of their organs' (VI 57: D 41). Descartes argued that 'reason is a universal instrument' and, although he did not explain what that meant, he seems to have appealed once again to the limited range of programmable dispositions that he could imagine being accommodated in any physical or physiological system. In contrast, the range of possible rational responses to the situations that human beings encounter is so great, compared with the limited number of responses that could be stored in a physical machine or brain, that 'it is morally impossible for a machine to have enough dispositions to make it act in every human situation in the same way as our reason makes us act' (VI 57: D 41). As in the reply to Newcastle about linguistic behaviour, Descartes argued that it would be impossible to design a machine that could be programmed to store a sufficiently large range of responses to external stimuli to respond as flexibly and rationally as human beings do.

The argument used in the *Discourse* and in all the examples where Descartes discussed animal behaviour was framed from outside the operations (whatever they may be) that occur in an animal's brain, as an hypothesis about what seemed reasonable to postulate to explain observable animal behaviour. In summary, one could (at least in principle) imagine features of an animal's brain that would explain adequately all instances of relatively inflexible behaviour, while acknowledging that we cannot 'reach into their innermost lives' to inspect what takes place there. In contrast with animal behaviour, however, we experience what occurs in our own minds, and this experience provides access to facts about ourselves that any viable theory of human nature must explain.

5.6 Consciousness

One of the prominent features of Descartes's discussion of human mental operations was that he tried to describe the subjective experience of consciousness by using the limited vocabulary that was available to him in scholastic Latin. He acknowledged this issue explicitly in Rule III of the *Rules*, where he wanted to use the Latin term '*intuitus*' without endorsing all the connotations that it had 'in the schools'. Since he wished to communicate with other scholars in Latin rather than invent a completely new language, he advised readers that 'when I lack appropriate words, I shall transfer to my own meaning whatever words seem most suitable' (X 369: D 123). The same issue about the availability of appropriate words or concepts reappeared when he wished to describe the experience of thinking, without endorsing the ontological implications of the terms that had been used for centuries in scholastic dualism.

Descartes used the word 'thought' (*cogitatio*) to denote all the operations that occur within us in such a way that we are aware of them. Thus he defined a 'thinking thing' in

the Second Meditation as 'a thing that doubts, understands, affirms, denies, wills, does not will, and senses' (VII 28: M 26) and, on other occasions, he included within the scope of the term 'thinking' remembering, imagining, dreaming (either when asleep or daydreaming). He made a more explicit attempt to define thought in the Second Replies: 'By the term "thought" I mean everything that is in us in such a way that we are immediately conscious [*conscii simus*] of it. Thus all operations of the will, intellect, imagination, and the senses are thoughts' (VII 160: M 85).

He gave a similar definition in the *Principles* three years later: 'By the word "thought" I understand all the things of which we are conscious [*nobis consciis*] as occurring in us, in so far as we are conscious of them [*eorum in nobis conscientia est*]. Thus not only understanding, willing, and imagining, but even sensing is the same as thinking in this context' (VIII-1, 7: M 114).[10]

This rather open-ended description of a range of activities of which we are conscious and which were traditionally associated with the mind raises the possible objection that Descartes was already begging the question about the explanation of those inner events in the very description that he had adopted. The language he used in the Second Meditation certainly caused that suspicion for some readers, when he summarized his interim conclusion as follows: 'Therefore I am in a strict sense only a thinking thing' (VII 27: M 25). That could have meant (a) that he was, in a strict sense, only a thinking thing, or (b) that he was, in a strict sense only, a thinking thing. He subsequently clarified, in a latter to Clerselier in 1646, that he had used the phrase '*praecise tantum*' to qualify how the subject knows itself rather than what it knows itself to be, i.e., that he meant (b) above.

> I said in one place that while the soul is in doubt about the existence of all material things, it knows itself in the strict sense only, *praecise tantum*, as an immaterial substance. And seven or eight lines further down, in order to show that by these words '*praecise tantum*' I do not intend an entire exclusion or negation of material things but only an abstraction from them, I said that we are nonetheless not sure that there is nothing corporeal in the soul, even though we do not know anything corporeal in it. (IX-1, 214–15)

This was consistent with what he had written in the Second Meditation, where he described himself as a thinking thing and still conceded that it was possible that 'the very things, which, I am supposing, do not exist [i.e. material things] because I have no knowledge of them, are not in fact distinct from the me that I knew' (VII 27: M 25). Thus the description of thinking as an activity of which subjects are aware as it occurs in them was meant to be no more than that: a description of an experience—the kind that Descartes often described as so obvious that it was undeniable.

Descartes did not explicitly endorse either of the two ways of describing self-awareness that were available in the scholastic tradition. According to Aquinas, human beings

[10] The French translation emphasizes the activity of thinking by using the verb *penser* rather than the noun *pensée* (IX-2, 28).

are directly aware of some object of perception and they become aware of themselves only by being conscious of various acts of perception that are directed to things other than themselves. Augustine, however, emphasized the equal capacity of human beings to be aware of extra-mental objects of perception and of themselves, as if the mind could direct its awareness on itself without engaging in any operations that are directed extra-mentally. While Descartes's language often seemed to favour the latter, the fundamental reality was that consciousness and self-consciousness are facts about our experience, however they occur or are described, and any theory of the mind that purports to be adequate must account for them.

Descartes's general analysis of what counts as an explanation of natural phenomena had significant implications for what would not count as an explanation of mental events. First among those was that the description of an *explanandum* cannot occur or be used in an *explanans*. Otherwise, one is merely repeating oneself. One cannot explain what occurs when a piece of wood burns by appealing to observable features of wood-burning, just as one cannot explain why magnets attract iron by appeal to their magnetic (or iron-attracting) properties. In the case of the human mind, therefore, the subjective experience of consciousness cannot re-appear in any viable explanation of the distinctive activity involved in human awareness. One may wonder what it is like to be a bat, but even if one could answer that question it would provide nothing more than a statement of the relevant *explanandum* in the sensory experiences of bats. We already experience what it is like for human beings to be conscious, and Descartes's arguments about explanation imply that no description of that experience may appear in any viable *explanans* of human mental events.

The second implication of the Cartesian critique of scholastic explanations is that, even if one tolerated the invention of a 'faculty' that is specifically designed to engage in all the mental operations and experiences, including consciouness, that we wish to explain, that would not represent any explanatory progress unless one could also explain how the hypothesized faculty interacted with the bodily person who is the subject of all the corporeal events that stimulate sensations and implement decisions. Thus, in contrast with the mere non-explanatory character of something such as the magnetic power of magnets—which was assumed to be some as yet unknown feature of the inner constitution of lodestones—the assumption that mental events are modes of an immaterial faculty would be even less satisfactory because it would involve a second degree of unintelligibility, as follows. Since we cannot imagine how neuronal activity could result in mental events,[11] we suggest that mental events are not neuronal and postulate instead some kind of non-neuronal faculty to which we attribute an activity that we cannot explain. Secondly, we cannot explain how this faculty that we do not understand interacts with the bodily events that, at least in principle, we hope to understand.

[11] 'We can *see* how liquidity is the logical result of the molecules "rolling around on each other" at the microscopic level. Nothing comparable is to be expected in the case of neurons . . . we do not really understand the claim that mental states are states of the brain' (Nagel 1986, 106).

This was the objection that was forcefully expressed by Princess Elizabeth[12] to Descartes in 1643, which seems to have convinced him to rethink the dualism to which the *Meditations* pointed:

> How can the human soul, which is only a thinking substance, determine the movement of the animal spirits in order to perform a voluntary action? It seems as if every determination of movement results from the following three factors: the pushing of the thing that is moved, the manner in which it is pushed by the body that moves it, and the quality and shape of the latter's surface. The first two presuppose that the bodies touch, while the third presupposes extension. You exclude extension completely from your concept of the soul and, it seems to me, it is incompatible with being an immaterial thing. (III 661: M 148)

That was exactly the same objection that Descartes subsequently made at the conclusion of the *Principles* (which was dedicated to Elizabeth), if similar mysterious entities were used in natural philosophy.[13] Descartes's attempts to reply to this question about mind–body interaction were unsuccessful, and Elizabeth confirmed her objection one month later when she wrote that 'it would be easier for me to attribute matter and extension to the soul that to attribute the ability to move a body, and to be moved by a body, to an immaterial being' (III 685: M 151). In summary, to locate mental events in a faculty that has no properties in common with a human body is merely to acknowledge that those mental events seem incapable of being explained by anything that occurs in such bodies and to remove them officially to the status of being inexplicable, if 'explanation' is understood as Descartes had consistently understood it.[14]

That raises the question whether Descartes proposed substance dualism as a theory of human nature, or whether his acknowledged failure to explain mental events as natural phenomena merely highlighted their status as characteristic properties of human beings that remained unexplained.

5.7 Substance Dualism

Descartes consistently held the same view about substances that Gassendi had proposed as if it were an objection to the *Meditations* (5.4 above), namely that we know nothing about substances or things apart from their properties. The scholastic definition of knowledge assumed that one could know a substance independently and could

[12] Princess Elizabeth of Bohemia was a daughter Elizabeth Stuart (who was daughter of James I of England) and of Frederick V, elector of the Palatinate, whose short reign as 'winter king' concluded with his family's exile in The Hague from 1632. For Princess Elizabeth's extensive correspondence with Descartes, see Shapiro (2007).

[13] Discussed above in 4.3.

[14] Nagel argued (1986, 114–15, 120) that the 'intuitive idea of autonomy' is incommensurable with any attempt to explain it 'objectively', and that it is impossible in principle to explain our subjective experience of autonomy by reference to desires, beliefs, etc. For that reason, 'the problem of responsibility is insoluble, or at least unsolved'. Descartes argued only that we lack an explanation of those experiences rather than that it is impossible to provide one.

then deduce knowledge of its properties from knowledge of the substance. The Cartesian concept of knowledge presupposed an inference in the opposite direction only, from properties—observable or otherwise—to knowledge of things. Descartes's use of the term 'substance' was particularly relevant to Arnauld, who was sensitive to its possible implications for Eucharistic theology, and he therefore asked Descartes to explain how he reached the conclusion, in the *Meditations*, that the human mind and body are 'really distinct'. In the course of his reply, Descartes wrote: 'We do not know substances immediately . . . but only because we perceive various forms or attributes that, in order to exist, must inhere in some thing and we call the thing in which they inhere a substance' (VII 222). He had previously given a similar reply to Hobbes's objection about the relation between mental acts that are known and the inferential knowledge of the mind that may be deduced from them: 'we do not know the substance immediately by knowing itself, but only in so far as it is a subject of certain acts' (VII 176). Having given these answers in the Third and Fourth Replies to objections, he was not revealing anything new when he replied similarly to Gassendi (in the Fifth Replies): 'I have never thought that anything else is required to reveal a substance apart from its various attributes, so that the more we know the attributes of some substance the more perfectly we understand its nature' (VII 360).[15]

It seems unlikely that Descartes ever formulated a clear concept of the traditional category of a substance. When considering how substances come to exist, he claimed that only God could create a substance; at the same time, he wanted to use the term to designate any reality that we would call a 'thing' (rather than, for example, an event or a quality of a thing),[16] and for that reason he conceded that even human beings can cause the existence of new things by splitting some physical body into parts. Despite his varying use of the term, however, Descartes seems not to have thought of a substance as some kind of bare particular or substratum, a propertyless principle of some kind that serves as a receptacle for various properties.

He seems instead to have thought of a substance as a thing that not only has properties but is defined by its properties. That was consistent with his account of modes, which are properties of things that cannot be separated from the reality of which they are modes without a corresponding change in the substance of which they are predicated. In simple terms, if something changes its properties it automatically (or by definition) becomes something else. Hence the theological objections to his theory of the Eucharist (3.5 above)—which assumed that the bread and wine remain on the altar after their consecration, because their properties are incapable of being observed unless the substances to which they are attributed are also present. This understanding of a substance, as nothing more than a thing that is defined by the cluster of properties that belong to it, was confirmed in one of his replies in the *Conversation with*

[15] Descartes expressed similar views in the Second Replies to objections (VII 161: M 86) and in the *Principles* (VIII-1, 8, 25: M 115, 131).

[16] 'By the term "substance" we cannot understand anything other than a thing [*res*] that exists in such a way that it needs nothing else in order to exist' (VIII-1, 24).

Burman: 'all the attributes, when considered collectively, are indeed identical with the substance' (V 155).

There is also no doubt that Descartes used the language of substances to refer to himself as a thinking substance and to describe human nature as a unity that is 'composed of a mind and a body' (VII 88: M 69). Although readers cannot fail to notice the frequent allusions to two substances in the Sixth Meditation, Descartes's consistent objections throughout his career to the substantial forms of the scholastic tradition, together with his clear analysis of why such philosophical entities fail to explain anything, make it highly implausible that he could have *proposed* substance dualism as a viable explanation of human nature. He evidently struggled to express how two apparently incommensurable substances could be so well mixed together that we experience their combined effects as if they originated in a single complex reality. As a result, he wrote in the summary of the *Meditations* that, although the mind 'is really distinct from the body', it is so closely joined with it that together they form a single entity (*unum quid*) (VII 15: M 17). This was the same term used in the Sixth Meditation, when he argued that sensations of pain, hunger, thirst, and so on—which are mental states—show that 'I am very closely joined with it [my body] and almost merged with it [*conjunctum & quasi permixtum*] to such an extent that, together with it, I compose a single entity [*unum quid*]' (VII 81: M 64).

The language of a single entity suggests a single substance, and that comes close to what Descartes wrote to Regius (3/4 February 1642), when the latter had talked about an accidental union of the soul and body. Descartes insisted that the mind and body are united 'by a genuine substantial union' and that the composite is a 'single *ens per se*' (III 508). Since an '*ens per se*' is a substance, Descartes was claiming that the human mind and body constitute a single substance. It was not surprising, however, that his correspondents found it difficult to think of mind and body as united in a single substance. Princess Elizabeth failed to understand this and Descartes conceded that the way in which we understand things, by applying concepts to them, makes it difficult to conceive clearly and simultaneously of the union and distinction of mind and body. 'The reason is that, in order to do so, it would be necessary to conceive of them as one single thing [*une seule chose*] and, at the same time, to conceive of them together as two things' (III 693: M 53). Of course one could resolve that problem by introducing the concept of a compound substance, as Descartes subsequently did in reply to the pamphlet of Regius, in which he argued that 'an entity in which we think of extension and thought simultaneously is composite' (VIII-2, 351).

The problem, however, was not a question of nomenclature, which could be resolved merely be accepting two kinds of substance, simple and composite. The problem was much more fundamental: how to explain human thinking without lapsing into the question-begging strategies of the scholastics (and therefore without appealing to a thinking form or substance). It was completely beyond the bounds of possibility for Descartes, as it remains for us today, to explain the activity or experience of human thinking by using the limited theoretical resources of his concept of matter. That concept

was inadequate even to explain how bodies move or why they exhibit such properties as elasticity, magnetism, etc. It was not surprising, then, that Descartes suggested an analogy between mental events and some other acknowledged properties of matter that remained equally unexplained. He wrote to Hyperaspistes (August 1641) that the mind is corporeal in the sense that it is capable of acting on a body (III 424), and he went even further in reply to More (5 February 1649) when he described immaterial substances as being like 'powers or forces of some kind' that are applied to bodies without being bodies, just as fire may be in a white-hot piece of iron without itself being composed of iron (V 270).[17]

The conclusion that Descartes aimed to establish in the *Meditations* was 'the distinction of the human soul from the body'. He established that distinction by showing that it was not possible to explain some mental events by any of the then known properties of matter, and by arguing that the indefinite flexibility of human behaviour—as displayed in rational interactions with our environment and especially by the way we use language—is such that it is unlikely that it could be programmed into any artificial machine or could be built by nature into any animal whose actions are explicable in principle by matter in motion. That implied that there are some operations or experiences of human beings that were not subject to the kind of explanation that Descartes applied to natural phenomena. Yet, they evidently exist. To acknowledge their apparent irreducibility to the operations of natural phenomena was not, of course, to provide an explanation of them. It amounted to nothing more than conceding that they are very different to anything that Descartes could envisage explaining and, if all natural phenomena are subject in principle to explanation, then mental events are in that sense not natural phenomena.[18]

But it would not advance one's understanding in the slightest to attribute these apparently inexplicable events and experiences to a spiritual substantial form, because (i) substantial forms *explain* nothing; (ii) to call them *spiritual* is merely to repeat the fact that they fall outside the scope of what we can explain in terms of matter in motion; and (iii) even if one agreed to postulate the existence of such strange entities, we have no idea how they could interact with human bodies, and they would therefore fail to fulfill precisely the function for which they are introduced. Descartes cannot therefore have proposed substance dualism as a theory of human nature. His attempt to contribute to the apologetic enterprise that the Lateran Council had prescribed for Christian philosophers provided only a minimal defence of that council's religious doctrine, i.e. that there was no plausible explanation available in the 1640s that would reduce mental events to natural phenomena. The immortality of the soul was a scholastic expression of a religious doctrine, which could be defended (weakly) against critics in early modern France by challenging them to provide the kind of explanation that continues

[17] Descartes suggested in the Sixth Replies that the mind might be understood by analogy with gravity, although there are also disanalogies here (VII 442).

[18] Chomsky (2009, 176) accepts this interpretation of Descartes's argument about the distinctness of mental operations.

to evade us today. Descartes did not show that human beings are composed of two substances, one of which is material and the other immaterial, but that there are features of human nature that remain apparently inexplicable.

5.8 Conclusion

In the immediate aftermath of Descartes's death in 1650, his friends edited and published some of his manuscripts, one of which was the *Treatise on Man*, from which he had extracted his published sketchy explanations of sensation, memory, etc. That offered commentators two radically different perspectives that were capable of expansion into either substance dualism or some kind of monism.

Henricus Regius (1598–1670) was prominent among those who understood Cartesianism as an attempt to develop a scientific understanding of human nature, and he developed that interpretation in *Physical Foundations* (Regius, 1646), which was extended significantly in subsequent editions and renamed *Natural Philosophy* in 1654 and 1661. Regius had struggled unsuccessfully for many years to accommodate Descartes's metaphysics within the natural philosophy of the *Treatise on Man* (which he had seen in manuscript). He had suggested in disputations that the mind and body were joined in an 'accidental' union or even that mental events were merely a mode of the body. Descartes had rejected both opinions (III 460, IV 250). After his public row with Descartes in 1647, and especially in the second edition of *Natural Philosophy*, which appeared four years after Descartes's death, Regius was then free to endorse publicly an interpretation of Cartesianism that its eponymous author had explicitly rejected.

Regius argued that, although the concepts of mind and matter are distinct, it does not follow that the realities to which they refer are incompatible (1654, 335). He argued that whatever we can conceive clearly and distinctly can exist, at least by God's power, and we can conceive of the mind as a mode of the body. Regius thus anticipated Locke's argument about the superaddition of mental operations to a physical body by divine power (1975: IV. iii. 6):

> Although the concept of a faculty of thinking includes nothing about extension and the concept of extension includes nothing about thinking, and since neither one excludes the other and therefore they are not opposites, they can both be present in the same simple subject, or thought can modify a material body. (1654, 337)[19]

Regius distinguished between what could be known by reason and what should be believed as a religious doctrine, and he reverted to that distinction to acknowledge that 'it is known from divine revelation' that the mind is a substance that is distinct from the body (1654, 346). These two sources of belief provided an opening for subsequent Protestant authors to re-interpret scriptural passages about the afterlife in a way that acknowledged the natural mortality of human beings.

[19] Regius concluded that 'our mind is most closely united with the body in a single substance' (1654, 346).

Louis de la Forge defended the alternative reading of Descartes's theory of human nature as fundamentally Augustinian, and emphasized the spirituality of the human mind and its angelic analogies. La Forge's *Treatise on the Human Mind* (1666) was the first of many Cartesian commentaries, from Gérauld de Cordemoy to Nicolas Malebranche and beyond, that protected the spirituality of mental events at the expense of making them inexplicable. In contrast with some less literal Protestant interpretations of the Bible,[20] this group of Catholic Cartesians continued attempts to find a coherent philosophical account of human thinking that implied the natural immortality, after death, of a distinct substance that seemed to function in our experience of thinking as if it depended on the brain. This was another case where a literal interpretation of rather vague biblical texts by church councils led its proponents into a metaphysical cul-de-sac.

[20] Since Protestant authors were not subject to a central teaching authority that claimed exclusive competence to interpret the Scriptures, some—such as Henry Dodwell (1641–1711)—concluded that the human soul is naturally mortal. See *An Epistolary Discourse proving from the Scriptures and the first Fathers, that the Soul is a principle naturally mortal; but immortalized actually by the pleasure of God . . . by its union with the Divine Baptismal Spirit, etc.* (London, 1706).

6

Ethics

The Good Life and the Moral Law

'I used only principles that are consistent with the Faith.'[1]

6.1 Introduction

When Christian reformers in the Holy Roman Empire and subsequently in France embarked on a zealous campaign to challenge traditional religious doctrines and moral practices in the sixteenth century, they composed catechisms to distinguish their theological beliefs from lapses from the 'true' faith that they identified within the Roman Church. In response, the Council of Trent commissioned its own catechism—primarily to educate clergy in the official teachings of the Council concerning grace, the sacraments, prayer, etc. These competing initiatives to proselytize resulted in Luther's so-called 'long catechism', Calvin's *Le Catechisme* (Calvin, 1595), and Trent's catechism of 1566, which was subsequently translated into English as *The Catechism for the Curats, Compos'd by the Decree of the Council of Trent* (1687). These official models inspired hundreds of local catechisms in vernacular languages, which were adapted to the needs of different regions and, especially, to variable degrees of literacy in an uneducated public.[2] The resulting wave of widespread, graduated indoctrination reached into households across France and specified—in addition to the theological beliefs that Christians were required to accept—the kinds of conduct that were or were not consistent with what disputing churches represented as God's law (Delumeau, 1988).

This intensive campaign to 'christianize' people, most of whom were illiterate, was also a major factor—together with a culturally entrenched misogyny—in the sudden emergence in France of the phenomenon of alleged witchcraft, and the numerous trials, mostly of uneducated women, whose superstitious pagan beliefs and rituals had

[1] Julien Davion, *The Philosophy of Socrates* (1660, Foreword, e ii v.).

[2] These included Luther's *Short Catechism* and numerous vernacular catechisms that were used to teach children. Calvin's version included the sub-title: *'The formula for instructing children in Christianity, which is presented in the style of a dialogue in which the minister asks a question and the child replies.'*

previously been widely tolerated.[3] Contemporary commentators on 'witchcraft' made explicit the assumption that holding some religious beliefs, even if they were not 'true', was a necessary condition for living a morally good life. For example, Bodin's *Demonmania* (1580) listed fifteen types of immorality that witches were accused of committing, in descending order of moral gravity.[4] They included sacrificing children to the devil and even copulating with devils, but the first and by far the greatest offence was to deny God's existence or to renounce all religious beliefs:

> But the most detestable witches are those who renounce God, and His service; or if they do not worship the true God, but have some superstitious religion, renounce that, in order to give themselves to the Devil, by express agreement. For there is no religion so superstitious that it does not restrain men in some way within the confines of the law of nature: to obey fathers and mothers, and magistrates, and also to avoid doing harm to anyone. (1995, 112)

For Bodin, the worst possible sin was to renounce 'all religion, either true or superstitious, which can keep men in the fear of committing offence' (1995, 204). He evidently assumed that, by renouncing their religion, witches automatically released themselves from all moral and political obligations, even the basic moral restraints that were included in the 'law of nature', and believed they were then free to engage in the most heinous crimes of which they were often found guilty.

The assumed link between religious beliefs and ethical conduct convinced both Christian reformers and their Tridentine opponents to intensify efforts to convert potentially reluctant citizens to live a Christian life. The catechetical objectives of the Catholic counter-reformation were supported by the foundation of new religious orders, such as the Jesuits and Oratorians, by reforms within established religious orders, such as the Capuchin reform among those who followed the Rule of Saint Francis, and by the foundation of religious societies for women, such as the Daughters of Charity of St Vincent de Paul. Since the population of France was still predominantly Catholic, the combined effect on the moral life of people of improved education for boys, mostly in religious schools, of the widespread re-education of clergy in the Council of Trent's teachings, and of catechetical instruction that was adjusted to the least educated church members was to establish 'divine law' as the primary source and ultimate authority by which most French citizens guided their earthly lives in preparation for the afterlife.

The motivation to comply with this moral law was reinforced by a credible threat of eternal damnation for those who were guilty of serious disobedience—credible, because the punishments imposed on heretics, witches, or common criminals at the time were extremely cruel by today's standards, and differed from those of the afterlife only in duration. As Wedgwood reports (2005, 15), an English traveller on the road

[3] As Levack (2006, 2) acknowledged, the rise and equally swift disappearance of the phenomenon of witchcraft has been attributed to many factors, including the Reformation, the Counter-reformation, the Inquisition, the wars of religion, the zeal of clergy and their attempts to suppress paganism, and misogyny (although witchcraft trials were not limited to women, especially in France).

[4] This popular analysis of witchcraft was republished subsequently in twenty-three editions and translated into German, Italian, and Latin.

from Dresden to Prague in 1620 counted 'above seven score gallowses and wheels, where thieves were hanged, some fresh and some half rotten, and the carcases of murderers broken limb after limb on the wheels'. If the Christian God were as vengeful in the afterlife as those who claimed to be his earthly representatives were in this life, the threat of post-mortem punishment for immoral behaviour provided an efficacious reason to comply with 'the moral law'.

Although different Christian churches preached alternative versions of divine law, they agreed that it was revealed in sacred scriptures, especially in the categorical negative commands that God allegedly communicated to Moses: 'Thou shalt not kill', etc. Plato had asked, in the *Euthyphro* (10a), whether the gods command certain actions because they are holy or whether they become holy simply in virtue of being commanded. The same question was relevant to the Christian ethic of divine commands. The simple answer given was that God had created human beings and, therefore, had the authority to regulate arbitrarily the conduct of those whom he had created. The more complicated answer derived from Pauline soteriology—a theory of human sinfulness that was inherited from Adam and that had so corrupted human nature that God had to intervene in human history to rescue men and women from their innately sinful condition. When viewed from that theological perspective, moral commands were no longer arbitrary. They were transformed into necessary and proportionate conditions for accessing the supplementary assistance that was made available by God's bounty as a means to eternal happiness.

All these factors combined to establish in France an almost universally adopted example of what Roger Crisp called a 'lived morality' (2004, 87), i.e., a set of practices, beliefs, norms, and emotional responses within a society that collectively provide reasons for acting in certain ways that are independent of the individual agent. Thus, if one asks whether some action is morally right or otherwise, a lived morality (usually) provides the answer that is implied by the inter-related assumptions on which the moral practices of the relevant society are founded. If, however, one asks a further question—about the plausibility or justification of the lived morality itself—one embarks on a different enterprise of explaining why that moral system rather than some alternative should be accepted. Philosophical discussions of ethics in early modern France inevitably involved both kinds of question about lived moralities—internal and external—and it was often unclear which question the various proponents of a Christian ethic were attempting to answer when they borrowed liberally from ancient sources. The reason for the ambiguity was as follows.

One of the distinctive features of French ethical thinking in this period was its emphasis on what Sidgwick described as 'the principles of Duty or Right Action—sometimes called the Moral Code' (1888, 6), in contrast with an ethic that focused on what was conducive to the good or well-being of an individual moral agent.[5] The

[5] Larmore (1996, ch. 1) and Darwall (2011) draw a similar distinction between an ethics that relies on reasons that are internal to the agent (e.g., that guide individuals towards the realization of a happy or

characteristic emphasis on duty, and on the obligations that divine law purported to impose on moral agents independently of the possible benefit that might result for compliant agents, seemed to assume a different concept of moral obligation to those that applied in ancient ethical systems. There is no reason to assume, as MacIntyre has shown, that ethicians had always used identical concepts to address similar questions or even that the fundamental concept of a moral obligation was understood univocally throughout the history of ethics.[6] The history of ethics, like that of other disciplines, is permeated by conceptual change. Nonetheless, within the ethical theory of any given author, one would expect that the concept of a moral obligation that is deployed is compatible with the theory in which it functions.

While ethicians in early modern France endorsed various expressions of Christian morality, they also appealed to Stoicism, Epicureanism, natural law, and Aristotelian virtue ethics to articulate the content of their moral beliefs or to defend them against critics. The use of what were otherwise mutually inconsistent ethical systems suggests that they were unclear about what kind of question, internal or external, they were attempting to answer. Since they reversed the relationship that one might have expected between foundational ethical principles and specific moral decisions, their philosophical expositions of ethics suggest that the lived morality of Christianity came first and its varied, mutually inconsistent justifications were added later. I return to this issue in 6.9 below.

An alternative response to the cultural dominance of Christian ethics in France was a total rejection, rather than a modification, of its burdensome demands. As Spink remarks (1960, 135) the conduct of the court and the town 'were no more based on the terrors of religion than those of Lucretius himself'. Clerical dominance gradually waned as upper-class morality became secularized, and displays of piety in the fashionable world were more likely to be seen as hypocrisy than a sign of genuine religious belief. Libertine authors openly mocked clerical morality, while often dedicating their writings to royal patrons or local princes. The refrain with which Claude de Chouvigny (*c.*1605–55) closed two verses of a chanson expressed vividly one alternative to the morality of the churches:

> *Mais je sais bien qu'on vit content*
> *En buvant, mangeant et f…* (Prévot II, 1355)[7]

Literary critics of the dominant ethics were almost as numerous as its philosophical exponents, but they fall outside the scope of this study. Instead, this chapter will focus on some representative attempts to provide a philosophical foundation for the Christian ethics that was widely shared in early modern France. The language of

fulfilled life) and an ethics that classifies some human actions as obligatory and others as impermissible whether or not the compliance of agents is beneficial to them. Both authors identify Kant's discussion of categorical and hypothetical imperatives as an example of the distinction.

[6] MacIntyre (1981) develops the theme of conceptual incommensurability among ethical theories.

[7] 'I know that one lives a contented life by drinking, eating, and f-ing.'

'natural law' was adopted as a promising foundation with which almost all ethicians of the period hoped to support their understanding of the moral law.

6.2 Natural Law

There was a clear distinction, as Tuck (1979) has shown, between natural law theories that used moral or legal terms to describe individuals in a state of nature, and those that denied any normative character to what they imagined as the natural, pre-social condition of human beings. Cicero provided a vivid description of the latter: 'there was a time when men wandered at large in the fields like animals . . . they did nothing by the guidance of reason, but relied chiefly on physical strength' (1949, 4).[8] If the natural liberty of individuals in such a hypothetical pre-social condition were described as a 'right', therefore, that term would mean only that there was *no* law (moral or civil) against the unrestricted use of their freedom.[9] These alternative descriptions of the natural condition of human beings, in normative and non-normative terms, permeate many subsequent appeals to natural law. They both appear in Aquinas's natural law theory, to which French theorists subsequently appealed with explicit acknowledgement.

Thomas Aquinas suggested in the *Summa theologiae* (IaIIae q. 94) that the fundamental principles of morality are innate in human beings, as a result of God's creative action. Because they are innate, in some unspecified sense, they are self-evident (*per se nota*) and can be known by anyone who is endowed with sufficient intellectual capacity to recognize them. The challenge, then, was to explain how these so-called principles could be innate, normative, and known.[10] Aquinas addressed those questions by reflecting on three levels of natural tendencies that human creatures have insofar as they are (i) things, (ii) animals, and (iii) rational agents. In common with all substances, human beings were assumed to have a tendency 'to maintain and defend the elementary requirement of human life' (1966, 81). They also share certain inclinations with other animals, such as 'the coupling of male and female, the bringing up of the young, and so forth' (1966, 83). Thirdly, human beings display an innate appetite for their own good insofar as they are rational, which includes a tendency 'to shun

[8] Cicero concluded that it seems impossible that 'a mute and voiceless wisdom' (1949, 7) could have persuaded human beings suddenly to adopt reasonable habits for living, and that rhetoric was necessary to persuade our ancient ancestors to adopt moral and legal standards.

[9] This sense of 'right' corresponds to what Hohfeld (1964, 38) classified as a privilege; if someone has a privilege in respect of *x*-ing, there is no law or valid right on the part of others as a result of which the holder of the privilege is obliged not to *x*.

[10] Conscience was often identified as providing the appropriate epistemic access to natural law, when it is described as 'the law of God inscribed upon the heart and known through conscience' (Van Drunen 143). Since conscience may uncover moral norms to which people have become so accustomed during their religious education that they appear self-evident, conscience (as a form of reflective self-awareness) cannot do the work required to justify the norms that it allegedly uncovers.

ignorance, not offend others with whom they ought to live in civility, and other such related requirements' (1966, 83).

These comments about innate tendencies are ambiguous between two alternative readings, which straddle the distinction between normative and non-normative claims. Aquinas came close to recognizing this ambiguity in the following reply to an objection:

> Something may be said to be natural in two ways: in one way, because nature inclines towards that thing, for example, that one should not injure another; in another way, because nature does not incline towards the contrary—for example, we can say that it is natural for human beings to be naked because nature does not provide them with clothes (which are provided by a craft). In this sense the common possession of all things and of one and the same liberty are said to be from natural law. (1966, 94)[11]

The second sense of 'natural' applied to a pre-normative pristine state, which was compatible with a range of alternative human actions or arrangements, each of which could then be said to comply with a normative natural law. According to Aquinas, such alternatives 'are not immediately prompted by nature, but have to be investigated and are reasoned out before they are held to be helpful to the good life' (1966, 85).

The ambiguous use of the term 'natural' to denote what is either normative or non-normative is equally explicit if so-called natural tendencies are described in terms of a right (*ius*) or a law (*lex*). There was a clear example of this in Gerson's *The Spiritual Life of the Soul*, which explained a 'right' as a disposition that is found in the sky, the Sun, etc.: 'In this way the sky has a right [*ius*] to rain, the Sun to shine, fire to burn, a swallow to build a nest, and every creature to do what it can do well by means of a natural faculty' (1706, 26). This extended use of the term *ius* coincided with an equally ambiguous use of *lex*, which applied equally to laws of nature—such as Newton's laws—and to a law that allegedly contains fundamental moral norms.

These ambivalent uses of the term 'natural' suggest two objections to ethical theories that claim to derive specific moral conclusions from even an agreed list of natural human inclinations. The first objection is that descriptions of human beings in a state of nature would imply specific ethical norms only if they were converted into implicit divine commands that guide agents towards the satisfaction of their natural inclinations (and if they had an obligation to obey God's commands). Secondly, since there are usually many alternative ways in which human beings may satisfy even divinely mandated needs or inclinations, as Aquinas acknowledged, a natural law theorist cannot conclude, without futher argument, that God specifically chose and commanded some means rather than others.

Despite these objections, almost all the French philosophers of the period used variations of the term 'natural law' to describe moral norms that they assumed were universal, accessible to reason, or in some sense innate in human beings as expressions of

[11] Author's translation rather than that of the 1966 edition.

a natural (or divinely created) teleology. As long as they failed to address the ambiguity inherent in the use of the term 'natural', however, their natural law theory provided no independent warrant for moral or ethical claims whose justification had to be found elsewhere.

6.3 Stoic Ethics and the Will

Guillaume du Vair* published a number of short ethical tracts in the late sixteenth century, which became popular both in French and English editions and were re-issued frequently in collections of his works. They included *The Sacred Philosophy*, a translation of the *Manual* of Epictetus, and a more explicit adaptation of Stoic themes to Christianity in *The Moral Philosophy of the Stoics*.[12] Du Vair borrowed liberally from ancient sources and the Neoplatonism of Ficino to produce an eclectic combination of Stoic ethics and divine commands, blended ambiguously under the banner of natural law. This philosophy implicitly assumed a metaphysical dualism, with favourable references to Platonism and its implications for the superiority of the mental over the physical. Without argument, Du Vair suggested in *Sacred Philosophy* that the sovereign happiness of human beings consists in the contentment and pleasure of the spirit, and that this is accessible only to those who have purged their souls of all vicious desires and restrained all the subtle and mortal passions that act like poisons on the mind (1603, 2, 11). There are also clear reflections here of the mystical philosophy of St Bonaventure, according to which the soul ascends to union with God by reflecting on itself, where it finds an image of the divine and a ladder by which to return to authentic wisdom.

The same theme was equally prominent in *The Moral Philosophy of the Stoics*. There he argued that, since the most important feature of human nature is reason, the good of man 'consists in his healthful Reason, that is to say, his Virtue' (1667, 4). Du Vair slides quickly from the role of reason as governor of an agent's conduct to the obstructive or diverting power of passions that 'disturb the peace of the mind, and mutiny against the Soul' (1667, 18), and which may arise in either its concupiscible or irascible parts.

The proposed counterweight to disturbing passions was rational choice or the faculty of the will: 'the Good of man and the perfection of Nature, consist in a right disposition of his Will' (1667, 21). Since the will is the controlling faculty that guides human behaviour, the success of its efforts depends on directing human actions only to goods that lie within its power to achieve; and since 'our bodies, estates, reputations' do not depend on our will, they fall outside the scope of what we can control and therefore we

[12] *La philosophie morale des stoiques* was translated twice into English, as *The Moral Philosophie of the Stoicks* (London, 1598), and as *The Morall Philosophy of the Stoicks* (London, 1664); the latter appeared in two subsequent editions in 1667 and 1671. I quote from the 1667 edn. I quote *Le Manuel D'Epictete* and *La Sainte Philosophie* by translating from Du Vair (1641).

should not be concerned with them.[13] Du Vair accordingly recommends the classical Stoic virtues of moderation in the use of all natural goods—a principle that he found corroborated even in Epicurus (1667, 29). This kind of moderation is also described as 'using things according to Nature' (1667, 60).[14] By emphasizing the superiority of the soul and its 'conquest' of the body, Du Vair concludes that 'death itself would not astonish us, and we should then be happy' (1667, 78). Since 'the contempt of Death is the true and living Source of all worthy and generous actions' (1667, 79), a similar contempt is even more appropriate for other human afflictions such as disease, poverty, pain, etc., which most people regard as inimical to happiness.

The Stoic ideal of living according to 'nature' was easily translated into the language of compliance with divine commands—a language that was so flexible that even Gassendi used it equally well in defence of Epicureanism. Du Vair assumed that the highest good towards which human beings can aspire is God:

> Good being the Object of the will of man, where it is most pure, and most entire, ought to be of the greatest value. The chiefest then, and most firm affection ought to be that which knits him to the Author and Principal [*sic*] of all Good. (1667, 87)

It was a short and easy step from that assumption to the conclusion that, since human beings ought to pursue their own good, they ought to obey divine commands and thereby achieve the happiness to which they naturally aspire. 'We come not into this world to command, but to obey, having here found the Laws already established' (1667, 89). Du Vair readily infers detailed guidelines from these principles—primarily for men—which includes devotion to their country, cherishing their children, respecting their wives ('after children, follow wives': 1667, 98), and protecting their health only to the extent that the body is a necessary instrument for the exercise of Stoic virtues.

A Capuchin Friar, Sébastien de Senlis, who published essays on Stoic ethics from 1637 to 1648, also attempted to integrate Stoic themes into a Christian ethic. In *Conversations with the Sage*, Senlis justified a Stoic disdain for one's earthly life by reminding readers of the Christian belief in the priority of the afterlife (1637, 146–56) and, anticipating Pascal's focus on human misery, supported his interpretation by assuming that most people who are imprisoned in 'this valley of tears' are discontented (1637, 146). But, as in the case of Du Vair, the controlling idea that informed and justified both the description of one's earthly life and the rationale for disdaining it was a theological belief about paradise. Similar comments are appropriate for those who drew their ethical inspiration from Plato. They appealed to a different group of ancient authors, as anticipating or confirming Christian morality, but still recommended the same ethical standards. Thus Julien Davion informed readers, in the Foreword to *The Philosophy of Socrates* (1660), that he 'used only principles that are consistent with

[13] The opening lines of *Le Manuel D'Epictete* express the same idea: 'There are things that are within our power, while others are not so . . . what is within our power is naturally free' (1641, 289).

[14] The 'good' or 'the end of Man' to which 'all his actions tend' (1667, 2) is equivalent to an 'operation according to Nature'.

the Faith', and he explained why we should not fear death if we anticipate the joys of heaven: 'To overcome death, we should not forget the final end, which is God; that is what gives value to all our actions, especially our last' (1660, 9).

While French moralists of the seventeenth century almost universally adopted the principle that an ethical life required reason or the will to control the passions, they disagreed significantly about the nature, classification, and functions of the competing forces that affect human conduct. The Stoic version of that principle was criticized for failing to acknowledge that human beings are embodied and that a viable ethics must be capable of guiding embodied people rather than angels. Christian eremitical literature since the time of St Jerome had emphasized the dominant value of the spiritual over the material and had dismissed the significance of pain, sickness, and even death. But it failed to acknowledge the extent to which even mental or spiritual actions are affected by bodily conditions. Saint-Évremond's *Essay on Epicurus's Morals* subsequently expressed that challenge in stark terms:

> The Mind cannot be entirely happy whilst Pain afflicts the Body… if any Man doubt, let him consult those who have been tormented with the Gout, Cholick, Strangury, or any other acute Disease. Let the Stoicks boast as much as they please of the insensibility of their Sect, and that rigorous Vertue which makes a mock of Pain; one fit of the Stone, or such like Distemper, will convince them that their Bodies do not center with their Opinion. (1712, 182)

Jean-François Senault (1601–72), a priest of the Oratory, expressed a similar objection more succinctly in *The Use of Passions* (1641): by failing 'to consider that human beings have bodies and that their souls are not disconnected from matter, they [Stoics] have wished to elevate them to the status of angels' (1641, 3).

Once the extreme angelic connotations of Stoicism were rejected, French moralists also reworked the subjective features of human agents by which they may control their behaviour and, if necessary, combat successfully desires or passions that are likely to mislead them. Francis de Sales (1567–1622) and Jean-Pierre Camus (1584–1652), both Roman Catholic bishops, had exchanged ideas about the nature and variety of human desires and came to the same conclusion that faculties that fall within the scope of 'reason' should be distinguished into those that are higher and lower. The main reason for this innovation was de Sales's assumption that sensitive desires are incapable of being directed to spiritual realities. Therefore, if human beings have a natural desire for God, it must originate in a spiritual faculty that is commensurate with the object of their desire. Theology was the driver in this analysis of human psychology; de Sales's theory of the human mind or soul was adjusted to include all the distinct capacities required to implement the obligations of his religious ethics.

De Sales repeated the commonplace that human nature represented a mean between that of angels and beasts, and that it participates in the former through its intellectual part and in the latter through its sensual part (1894, 78). Accordingly, in his *Treatise on the Love of God* (1616), he distinguished between the 'sensual appetite' as the seditious and rebellious source of concupiscence and 'affections of the will' that are directed to

spiritual goods (1894, 65, 68). This distinction provided a novel category other than sensual passion—'a natural inclination to love God above all things' (1894, 87)—by which human beings could desire or love what the Christian tradition had consistently taught was the ultimate source of their happiness. It also made the resulting love subject to the control of the will, in contrast with passions, which were described as uncooperative slaves. For, although they were subject in principle to the authority of the will, the passions often failed to comply with its commands (1894, 65).[15]

De Sales went on to distinguish four levels or degrees of affection, which were distinguished by their proper objects:

> The first are called natural affections, for who is there who does not naturally desire to be healthy, to have the necessary provisions for clothing and nourishment… The second affections are called reasonable, insofar as they are all based on the spiritual knowledge of reason, by which our will is stimulated to look for tranquility of the heart… The affections of the third level are called Christian, because they originate in discourses that are drawn from the teaching of Our Lord… But the affections of the highest degree are called divine or supernatural, because God himself distributes them to our spirits… (1894, 69)

This classification of affections as a function of their specific objects raised a question about the necessity or otherwise of grace as a precondition for sinful human beings to acquire an effective love of God, to which I return below in this section. The ambiguity about that issue is probably reflected in de Sales' reduction, to three rather than four, of the types of love of which we are capable: spiritual, reasonable, and sensual (1894, 78).

Camus was sufficiently impressed by his discussions with the bishop of Geneva to adopt a similar distinction between two different parts or functions of the soul. He claimed, in his *Treatise on Interior Reformation*, that there are two wills in human beings:

> This learned and devout bishop [i.e. de Sales] proves… that, corresponding to the two parts of the rational soul, there are two wills, one of which is superior and is in the top of the spirit, and the other inferior one, which is in the region of the powers. (1631, 76)

Despite the proliferation of parts or functions of the soul or mind, however, de Sales and Camus had a significant influence on later French moralists by integrating some affections or desires into the human soul and thereby reducing the dualist conflict between mind and body that had characterized Stoic ethics.

Unfortunately, the introduction of a natural, spiritual love of God failed to address a more fundamental, theological objection concerning the means by which a Christian Stoic could live the kind of life that their theory recommended. Even if the distinction between spiritual affections and passions were adopted, Jean-François Senault

[15] De Sales is unclear whether love is subject to the control of the will; the metaphor of iron being attracted to a magnet as a 'true image' of voluntary love, and the general description of love in Book I, chapter vii (1894, 70–1), appear to endorse the Cartesian view of an irresistible attraction between the will and what it perceives as good.

appealed to St Augustine to argue that human nature, including its intellectual or spiritual functions, was corrupted by sin. As a result of Adam's sin, human beings are capable of corrupting their lives by their own free choice, but they lack the capacity to save themselves by their own power. 'Their loss came from their will, and their salvation can come only from grace' (1641, preface). In brief, since all sin arises from uncontrolled passions, and sin cannot be overcome without divine grace, Senault concluded that the Stoics were fundamentally mistaken in thinking that reason or nature alone could succeed in mastering the passions. Pascal later proposed an extreme version of this theological view, that human nature is so corrupt that it is impossible for human agents ever to comply with the moral law without the additional support that God allegedly withholds from those whom he predestined to be damned (6.8).

6.4 Passions as Moral Guides: La Chambre

In contrast with Du Vair's Stoicism, other French moralists acknowledged the uneliminable role of passions as factors that motivate human agents towards ethical conduct while also advocating the necessity of moderating their potentially baneful influence. Marin Cureau de la Chambre* was a prominent exponent of that position. He composed a popular three-volume book on the *Characters of the Passions* (1648–60), in which he planned to provide a medical, moral, and political account of human passions, virtues, and vices. La Chambre accepted that, in themselves, all the passions are useful and necessary, as innate movements that 'nature' provides for the protection of animals. For example, if one did not experience pain from extreme heat, one's body would be consumed in flames before taking appropriate action.

> It is a well-founded truth that there is a secret knowledge within us of things that are conducive to our conservation. This knowledge is probably provided by certain ideas that nature imprinted in the depths of our soul; since they are hidden, as it were, and buried very deeply, they are triggered and revealed when they encounter things that the senses present to them and then cause love or hatred, desire or aversion in the appetite. Since there are only two things that are conducive to our conservation—the search for good and the flight from evil—it is very certain that Nature thinks more about looking for the good than avoiding what is evil. (1648, 80–1)

La Chambre assumed that 'nature' had instilled various degrees of this secret knowledge in all creatures, and that it was more distinct and apparent in animals than in plants (1660, 389). It was consistent, therefore, with La Chambre's parallel account of animal knowledge that he thought other animals share many of the passions that characterize human beings, such as the 'natural hatred' that sheep have for wolves (1659, 180).[16] Natural law re-appears in this context as an expression of the 'divine art' by which God protects all his creatures (1648, 26); each passion—such as the passion of

[16] La Chambre (1662) gives an extensive account of animal knowledge.

anger—derives from nature and 'this nature is nothing other than the Art of God and the expression of his bounty and wisdom in all his creatures' (1659, 291).

The natural innocence and protective benefits of all the passions, by which human beings are attracted to the most necessary and noble human actions (1648, 151), is no guarantee that the resultant actions are always beneficial. Unless the passions are obedient to 'reason', they tend to rebel against it and lead to perdition. La Chambre concludes that wisdom—which requires us to obey all the laws that 'medicine, morality and religion have prescribed' (1648, 152)—is necessary to avoid such a dangerous outcome, which causes havoc to both mind and body. Luckily, 'the providence of nature' has also provided human beings with passions for avoiding evils that are more numerous, swift, and sensitive than those by which we are attracted to what is good, because evils are more numerous and incomparably more effective and attractive than goods (1659, 1–2).

La Chambre's account of the passions, therefore, combines (i) a providential interpretation of natural tendencies that human beings share with other animals as guides to achieving their own good, and (ii) a Christian hierarchy among various goods that identifies those that are most important.

> Since our soul is immortal, it does not need [*n'a pas besoin de*] anything that is perishable . . . God alone should arouse its desires, because He alone is capable of filling the infinite abyss and immense void that is found in the soul. (1648, 277)[17]

La Chambre describes the moral life, accordingly, as a struggle between virtue and the passions (1660, 180–5). Failure to control the passions leads to rebellions in a state, heresy and atheism in religion, and libertinism in families—all of which result from a presumptuous temerity by which people fail to respect legitimate authorities (1660, 127).

La Chambre's analysis of human passions includes a detailed description of each human passion and the physical signs of its occurrence, an outline of its 'natural' role as a protective shield against dangers to human survival and, especially, an assessment of the moral and political evils that result when passions are not guided adequately by human reason.

6.5 Descartes and the Will

Although Descartes dismissed La Chambre's theory as mere 'words' (III 296) and rejected the suggestion that animals have some kind of primitive knowledge, his account of the passions and of how they may be integrated into an agent's moral life borrows some of its most significant features from his observation of animal

[17] The immortality of the soul would not imply that it does not need perishable goods during its earthly existence in order to act morally. La Chambre seems to mean that nothing other than some eternal good would satisfy it.

behaviour.[18] That was consistent with the implications of the metaphor of a tree of knowledge, which he included in the French edition of the *Principles*.

> The whole of philosophy is like a tree, the roots of which are metaphysics, its trunk is physics, and the branches that grow out of this trunk are all the other sciences, which are reducible to three principal ones: medicine, mechanics, and morality—by which I mean the highest and most perfect morality, which presupposes a complete knowledge of the other sciences and is therefore the highest degree of wisdom. (IX-2, 14)

If Descartes's metaphysics had endorsed the unqualified substance dualism that Ryle caricatured as 'the dogma of the Ghost in the Machine' it would have been impossible to explain how mental activity in a spiritual substance could influence the physical activity involved in human behaviour, and it would have been an insurmountable obstacle to founding a moral theory on metaphysics and physics. When Princess Elizabeth raised that objection to dualism on first reading the *Meditations* (5.6 above), Descartes began to reconsider the nature and functions of human emotions (as a tentative 'physical' theory of mind–body interaction) and how they might be integrated into an ethical theory. These reflections were drafted between 1645 and 1649, when they were published as *The Passions of the Soul*.

Descartes accepted, in the *Principles of Philosophy* (1644), that freedom of the will 'is so evident that it should be counted among the first and most common notions that are innate in us' (VIII-1, 19: M 126). But the fact that some choices appear to be free does not provide any theory of what 'freedom' means in this context; nor does it explain how such choices help control our behaviour or why other choices that seem to be equally free fail to control different instances of human conduct. When Descartes made a similar claim about the experience of mind–body interaction in a letter to Arnauld, in 1648, he acknowledged that some attempts to explain it (by using inappropriate models) merely obscure what is already evident:

> That the mind, which is incorporeal, can move the body is something that we are shown, not by any reasoning or comparison with other matters, but by the most certain and evident everyday experience. This is one of those self-evident things that we obscure when we try to explain them in terms of other things. (V 222)

Nonetheless, the limited freedom that we seem to experience in some actions does require an explanation, and the obvious place to look for a tentative account was in a theory of mind–body interaction. Since the causation of physical motions seemed more tractable than the causation of mental events, Descartes looked initially at the former.

If the human body were considered like any other physical body, one would expect its various states and motions to be explained by reference to earlier states of the total

[18] Descartes's moral theory is discussed by Morgan (1994), Marshall (1998), Brown (2006), Cottingham (2008, 231–52) and Kambouchner (2008). The correspondence with Princess Elizabeth is translated in Shapiro (2007).

physical system of which it forms a part. That suggested that human behaviour is subject, in principle, to a physical explanation, and Descartes endorsed that conclusion in *The Description of the Human Body*:[19]

> We can also see that when parts of our body are harmed—when a nerve is pricked, for example—the upshot of this is that, not only do they stop obeying our will… but often they even have convulsive movements which are quite opposed to it. This shows that the soul can cause no movement in the body unless all the corporeal organs required for that movement are properly disposed. Besides, when the body has all the organs disposed for this movement, it does not need the soul to produce it. Consequently, all those movements that we do not experience as depending on our thought must not be attributed to the soul but only to the disposition of our organs. And even those movements that are called 'voluntary' proceed principally from this disposition of the organs, for they cannot have been produced without it, no matter how much we will it, and even though it is the soul that determines them. (XI 225: W 171)

The Cartesian theory of physical motion required an adequate bodily explanation of the motions involved in human behaviour and, once that was in place, nothing further was required except some factor that determines or directs human behaviour.

Descartes consistently claimed that our conception of God's will provided a model for an ideal or perfectly 'free' will, because the divine will is not indifferent to what is good; it cannot will what is evil, and its inability to do so is not an imperfection. In fact, it is the mark of any thinking thing that it infallibly chooses what appears good to it: 'The will of a thinking thing is indeed carried voluntarily and freely (since this is the essence of a will), but nonetheless infallibly, towards a good that is known clearly by it' (VII 166). When human wills lack such an unambiguous perception of what is good, however, they may experience indifference—for example, if the choices available to them appear to be equally attractive. But in many other cases they are determined to act in a given way. For example, according to Descartes, we cannot withhold assent to propositions that seem to be beyond doubt, and we cannot stifle a desire for things that are presented as unconditionally good. In fact, 'there is nothing entirely within our power except our thoughts' (II 35).[20] Even among our thoughts, some—such as those that result from sensory stimulations—are not within our power; we passively experience sensations without being able to prevent their occurrence. Descartes argued, in the Sixth Meditation, that he experienced sensory ideas 'without any consent on my part' and that he was 'incapable of not sensing' objects of sensation when they were 'present to my sensory organs' (VII 75: D 59).[21] The challenge, then, was to explain how

[19] This was first published posthumously in 1664 (Descartes, 1664), but had been drafted and amended at various times before 1648.

[20] Descartes often repeats this claim. 'There is nothing that is completely within our control apart from our thoughts' (VI 25: D 20).

[21] 'I have never said that all our thoughts were in our power, but only that if there is anything absolutely in our power, it is our thoughts, that is, those that come from our will and free choice … I wrote that only to explain that our free will has no absolute jurisdiction over any bodily things, which is obviously true' (III 249).

the limited control that human agents exercise over some of their thoughts could affect some bodily actions sufficiently to classify them as 'free'. Descartes's solution was based on his account of the passions.

The author of *The Passions of the Soul* set out to explain human emotions, in 1649, as a 'natural philosopher [*physicien*]' rather than as a rhetorician or a moral philosopher (XI 326). The passions were initially conceived, by analogy with sensations, as mental experiences that are connected causally, by nature, with bodily events and which are such that the agent has no direct control over their occurrence. In the case of sensations, purely physiological events in the stomach or throat stimulate the brain to generate an experience of hunger or thirst; in a similar way, particular flows of animal spirits (which were understood as a very subtle liquid) trigger an experience of joy or sadness. This natural concurrence of physiological events and correlated mental experiences suggested a definition of passions as 'perceptions, or feelings, or emotions of the soul that are specifically referred to the soul and are caused, maintained, and strengthened by some movement of the animal spirits' (XI 349). In other words, there is a reciprocal natural relation between certain experiences that are classified as 'mental' and specific flows of animal spirits in an agent's body.

Descartes also understood the function of human passions by analogy with sensory experiences of extra-mental phenomena. In the Sixth Meditation he had discussed misleading sensations and accepted that God had designed human nature so that he spontaneously fled from what he perceived as harmful (through the experience of pain) and was attracted to what appeared to be beneficial (by the experience of pleasure). In that sense, he was 'taught by nature' what was usually in his best interests. The passions function in a similar, generally beneficial manner; they are all 'good in their own nature' (XI 485). They guide human beings spontaneously or naturally to what is usually good for them.

The novel feature of Descartes's account of how a human will function was based on his theory of animal conditioning and of how memory and imagination (both of which are explained by events in the brain) store images and make it possible for people to learn new patterns of behaviour from prior experiences. Non-human animals can be conditioned by repeated experiences to link a specific type of action with a novel stimulus: 'if you whipped a dog five or six times to the sound of a violin, I believe that it would begin to bark and run away as soon as it hears that music again' (I 134). He used a similar example almost two decades later, when writing *The Passions of the Soul*, where he discussed the experience of training hunt dogs not to run away if they hear the sound of a gun firing. 'Since it is possible, with little effort, to change the movements of the brain in animals that lack reason, it is evident that it is easier to do so in the case of human beings and that even the weakest minds could gain complete control over all their passions' (XI 370). In other words, human beings may also be conditioned in a similar way to non-human animals. For example, people remember dancing to a particular tune and, when they hear the same music subsequently, they experience a desire to dance again. This kind of conditioning provided the possibility

of a significant expansion of the repertoire of mind–body links with which 'nature' endows human agents and which are found in our innate passions.

Descartes hypothesized that there are some basic passions, such as love, that are innate in human nature and by which specific experiences concur with equally specific bodily events, even if we do not understand adequately how those links work. Conditioning then explains how innate links between mental experiences and bodily conditions can be exploited to establish new links and thereby expand our natural repertoire of mind–body connections:

> I derive an explanation of all this from what was said above, namely that our soul and our body are so linked that, if we have once joined some bodily action with a certain thought, one of them does not occur afterwards without the other also occurring. We see this, for example, in those who have taken some medicine with great revulsion when they were ill, and cannot afterwards eat or drink anything that tastes similarly without immediately feeling the same revulsion. Likewise, they cannot think of their revulsion from medicines without the same taste returning in their thought. (XI 407)

There is no suggestion that, in order for the passions to be effective, agents must understand the mechanisms by which their experiences are related to bodily events or that they must direct those mechanisms in order to act in a certain way. For example, if we wish to say something, we do not decide to move our muscles in the complex ways in which they function in order to make the appropriate sounds. We simply think of what we wish to say and that thought is associated 'by the habits acquired in learning to speak' with the meaning of the words used rather than with the words themselves (as sounded or written), and the latter usually follow if our language learning has been successful.

In a similar way, we cannot exercise any direct control over our passions or our bodily behaviour; the passions cannot be 'aroused or suppressed directly by the action of our will' (XI 362). We may be able to do so indirectly, however. While we cannot overcome fear by deciding to be brave, we may be able to control our fear indirectly by considering the probability and seriousness of the danger that triggers it. The Cartesian account of human action, therefore, is one that begins with nature as we find it, in which certain fundamental desires are linked with the satisfaction of fundamental needs. These desires usually cause the corresponding appropriate behaviour. For example, an infant feels hungry and experiences the taste of food, and its spontaneous attraction to food that tastes good is expressed in its feeding behaviour. Nonetheless, just as sensations may mislead us into making false judgements, so likewise our natural desires and innate passions may mislead us into actions that are inimical to our welfare. We can also correct those misleading passions, however, and their associated misguided actions, 'and here lies the primary usefulness of morality' (XI 436).

Descartes developed this idea in correspondence with Princess Elizabeth, in the course of which he recommended that they jointly read Seneca's *The Happy Life* and reflect on what she could do to restore equanimity and peace to her troubled life in

exile. He emphasized that there are many things outside an agent's control and suggested that Elizabeth should focus as much as possible on those things that were genuinely within her control—which were her own thoughts. He had given hints of this Stoic theme as early as the *Discourse on Method* (1637), and now recommended (in 1645) 'that all the goods that are not possessed are completely and equally outside one's power, and in this way one gets used to not desiring them' (IV 265–6). Elizabeth replied that some illnesses reduced her capacity even to think clearly, so that the achievement of happiness was not always within her power—an objection that he accepted, with the qualification that one may be held responsible only for those actions that are genuinely within one's control.

Descartes provided further comments, in this correspondence with Elizabeth, about the ambiguity of what Seneca may have meant by living 'according to nature', and about blessedness or happiness as the ultimate goal of human actions. If 'nature' means the order of creation established by God as creator, then living according to nature could be translated as submitting oneself to the will of God (IV 273). Descartes also commented on the distinction between (i) the supreme good, (ii) blessedness or happiness, and (iii) the final goal of all human actions. He distinguished between living in a state described by the Latin term '*beate*' (blessedly) or the French term '*heureusement*' (happily). The former consists 'in a perfect contentment of the mind and inner satisfaction', over which the agent has control, whereas the French term had connotations of beneficial experiences that depend on things over which an agent lacks control.[22] For example, good health or wealth could make someone happy (*heureux*) but, since those sources of happiness are not within one's control, they fall outside the scope of morality or of living *beate*. Although the experience of living *beate* is not the supreme good but, rather, is the inner contentment or experience that results from possessing it, one could still think of either (i) or (ii) as the goal of all actions because the contentment that results from realizing (i) is what motivates agents to seek it.

Descartes's ethical theory and his complementary account of the role of passions in human action could be described as a form of Christian Stoicism in which the significant function of the emotions in causing human actions is adequately recognized. Human passions—whether innate or acquired by training—are the factors that cause human behaviour, and an understanding of how they function provides the key to constructing a moral theory.[23] One's natural passions, just like normal sensations, usually provide reliable guides to what is beneficial to human agents. But they may also 'make us believe that certain things are much better and more desirable than they

[22] Morgan (1994, 103–6) and Marshall (1998, 61–71) discuss the significance of this distinction for Descartes's ethics.

[23] Descartes wrote to Chanut, 15 June 1646, that 'the understanding of physics that I tried to acquire, such as it was, has helped me greatly to establish sure foundations in moral philosophy', thereby confirming the implications of the tree metaphor in the *Principles* and the perspective of a natural philosopher that he adopted in examining the passions. Descartes repeated this claim in a letter to Chanut (26 February 1649): 'these truths of physics [in the *Principles of Philosophy*] are part of the foundations of the highest and most perfect morality' (V 290–1).

really are' (IV 284). As in the parallel epistemic account of how reason may correct misleading sensations, Descartes relied on moral judgements to correct the misleading guidance of some passions and on the will to guide human behaviour accordingly.

It is clear from his discussion that Descartes does not think that the will, as a faculty of the mind, could control human behaviour directly. The only things within our control are our own thoughts, and even those are only partly subject to our control. Descartes also accepted that 'it is reasonable to praise or blame us only for actions that depend on this free will' (XI 445). The metaphor of pilot in a ship—which Descartes rejected in the Sixth Meditation as an inappropriate model of mind–body interaction[24]—or of a fountaineer who manipulates the forces at play in a fountain, are appropriate models for how the will functions. If we know what is in our best interests and make corresponding judgements, we then guide our behaviour by thinking thoughts that are linked, by nature or conditioning, with the actions that we wish to perform. As he expressed it in the provisional morality summarized in the *Discourse on Method*, 'our will cannot follow or flee from anything except in so far as our understanding represents the thing in question as good or evil', and therefore 'judging well is enough to do good' (VI 28: D 22). Of course, that presupposes some way of knowing what is in our best interests.

Descartes seems to have repeated many of the commonplaces of his time in his discussion of morality. He accepted that God's will determines human nature, and that one is more likely to live a happy or fulfilled life by observing the prescriptions of divine providence insofar as they can be known. Accordingly, he decided to 'obey the laws and customs of my own country, holding firmly to the religion in which, by the grace of God, I had been instructed from my infancy' (VI 22–3: D 19), and he added a Stoic dimension of overcoming himself rather than fortune, and changing his desires rather than the structure of the world (VI 25: D 20), because that was the only reality that was within his power. But the extent to which he acknowledged the significance of the passions as factors in our moral lives was still inadequate for Gassendi.

6.6 Epicureanism: Pierre Gassendi

Pierre Gassendi acknowledged 'the existence of God and the immortality of our souls' as truths that he believed for religious reasons, even if philosophical arguments in their favour are weak,[25] and they underpinned his contribution to ethics in which he combined eclectically a modified version of Aristotle's account of virtue with the fundamental principles of Epicurean ethics. When introducing Gassendi's theory of the human soul above (5.4), I mentioned the difficulty of identifying Gassendi's own view

[24] 'Nature teaches me by means of the sensations of pain, hunger, thirst, etc. that I am not present to my body only in the way that a pilot is present to a ship' (VII 81: M 63).

[25] Gassendi argued for the immortality of the soul in Book XIV of the Physics section of the *Syntagma* (1658: II, 620–58).

about any issue among a wide range of disparate opinions that he quoted with apparent endorsement. Despite these stylistic challenges, however, it is beyond dispute that he not only reported sympathetically the views of Epicurus but that he also attempted to integrate them with appropriate amendments into a broadly Christian view of the universe. François Bernier (1620–88) subsequently provided readers with a more accessible *Summary of the Philosophy of M. Gassendi* in French, but even that summary extended to seven volumes. Bernier's version of Gassendi's ethics was translated into English as *Three Discourses of Happiness, Virtue, and Liberty* (1699).[26]

The fundamental principle of Epicurus's ethics, as expressed in the *Letter to Menoeceus*, was that 'pleasure is the starting-point and goal of living blessedly' (1994, 30). Nonetheless, Epicurus did not recommend an unqualified hedonism. Although he concluded that 'death is nothing to us' because 'all good and bad consists in sense-experience' and we have no experiences when we are dead (1994, 29), he qualified the pursuit of pleasure by the need to calculate 'by comparative measure… the advantages and disadvantages' that may result from particular actions (1994, 30), and concluded:

> When we say that pleasure is the goal we do not mean the pleasures of the profligate or the pleasures of consumption, as some believe… but rather the lack of pain in the body and disturbance in the soul. For it is not drinking bouts and continuous partying and enjoying boys and women, or consuming fish and other dainties of an extravagant table, which produce the pleasant life, but sober calculation which searches out the reasons for every choice and avoidance and drives out the opinions which are the source of the greatest turmoil for men's souls. (1994, 30–1)

Despite this and many similar qualifications, and despite the historical evidence about the sober and almost Stoic asceticism of Epicurus's own life, commentators have consistently accused him of either saying what he denied or of living inconsistently with his philosophy.

Cicero was typical of this critical tradition. He asked his Epicurean interlocuter, in *On Moral Ends*, to identify the 'highest, greatest and ultimate good as that to which all right actions are a means' and which 'is not itself a means to anything else' (2001, 27). When Torquatus described the highest good as pleasure and the absence of pain, Cicero objected that these are two distinct ends, rather than one; that the Epicurean philosophers believed a human being was 'created to be a slow and lazy sheep, fit for grazing and the pleasures of procreation' rather than the god-like thinking that

[26] Joy (1987, 3, 13) described Bernier's *Abrégé* as a 'French translation' of the *Symtagma Philosophici*, while Osler (2005, 158) claimed that Gassendi's 'Ethics' was translated into English in the seventeenth century in the *Three Discourses*. Neither is correct. Although Bernier adopts the same divisions into books (though not chapters) as Gassendi's text, he provided a significantly abridged summary of Gassendi's ideas rather than a translation. Gassendi presented his ethical theory in two works: in Part III of the *Syntagma Philosophici*, which is entitled *Ethica* (1658: II, 599–745), and in another book with a similar name, *Philosophiae Epicuri Syntagma*, Part III of which summarizes Epicurus's ethics (1658: III, 63–94). Sarasohn (1982, 1996) provides a helpful analysis of Gassendi's ethics.

Aristotle had valued; and that if pleasure were the supreme good, an ideal life would involve spending 'our days and nights experiencing the most intense pleasure' without interruption. Cicero also distinguished between the pursuit of one's own pleasure and familiar Greek ideals of doing one's duty, and claimed that the latter was not reducible to the former: 'fairness, honesty and justice do not originate in nature, and if all merely serve utility', there would be no morally good people at all (2001, 32, 40, 63, 46). Since Gassendi was well aware of such objections, he attempted to integrate an Epicurean principle of acting for pleasure with a Christian account of divine commands, and thereby to avoid the pejorative implications of Horace's proverbial comment about 'a pig from the herd (or school) of Epicurus' (*Epicuri de grege porcum*).[27]

Accordingly, he prefaced his *Summary of the Philosophy of Epicurus* by directing readers to remarks in which he rejected various opinions of Epicurus that were inconsistent with the 'holy faith' (1658: III, 2). Nonetheless, Gassendi still reported the argument that there is nothing to fear in death because the dead have no sensory experiences: 'whatever good or evil occurs to us, occurs through sensation, and death is the absence of sensation' (1658: III, 83b).[28] That is evidently inconsistent with Gassendi's belief in the immortality of each individual soul and with the traditional Christian doctrine about punishment in the afterlife for those who fail to comply with divine commands.[29] For a Christian, death could result in eternal pain.

Gassendi provides a standard expression of Epicureanism in his *Ethics*: 'The end of a good life is nothing other than . . . the health of the body and the tranquility of the mind' (1658: II, 682a). This formulation seems to accept the Aristotelian assumption that there is only *one* ultimate end towards which all human actions tend, and it was open to Cicero's objection that pleasure and freedom from pain are not a single objective. Gassendi could avoid that objection by distinguishing different kinds of pleasure. The title of the first chapter of his Ethics is 'Happiness' (*De Felicitate*), and Bernier's brief version of the thesis, in the opening lines of his treatise *Of Moral Philosophy*, sounds almost like a reworking of Aristotle:

> Mankind having a natural Inclination to be happy, the main bent and design of all his Actions and Endeavours tend chiefly that way. It is therefore an undeniable Truth, that Happiness, or a Life free from Pain and Misery, are such things as influence and direct all our Actions and Purposes to the obtaining of them. (1699, 1)

The focus on pleasure (*voluptas*), either as a passing experience that occurs when a desire is satisfied (kinetic pleasure) or as a continuous state of tranquility (katastematic

[27] Saint-Évremond comments on this (1712, 164): '*Epicuri de grege Porcum*, was a Sarcastic Expression of a Poet, reflecting upon the followers of *Epicurus*, and representing them as persons wallowing like Swine in all manner of Sensuality, and more than beastly Pleasures.'

[28] He repeats this in ch. XXII, that 'there is no genuine evil apart from bodily pain' (1658: III, 84b).

[29] Lucretius provided a characteristic expression of the alternative view, which is also that of Epicurus, in *The Nature of Things*: 'Thus when the body is destroyed, you must admit the soul/Passes away, shredded through the body as a whole' (2007: Bk. III, 798).

pleasure), was not remotely as radical as it appears initially.[30] For Gassendi also accommodates, within an eclectic reflection on the good life, Aristotelian virtues, Christian divine commands, and distinctions between (i) short-term and permanent pleasures, and (ii) bodily and spiritual pleasures.

The range of ancient views that Gassendi cites favourably and the theological assumptions that he endorsed were such that he cannot be understood as a normative egoist, i.e., as denying that it is possible to act for other-regarding reasons. Although he did not say this, he seems to have been speculating empirically about human motivation and action, and to be reporting (as a fact about human psychology) that human desires are the natural and primary factors that explain why people act as they do. This is a form of psychological egoism: human agents are motivated to act or not act by their assessment of what is likely to satisfy their desires, although such desires may include objectives that are altruistic or benevolent.

Having hypothesized that account of human motivation as an 'undeniable truth', Gassendi had room to distinguish between bodily and mental pleasures, and between the satisfaction of desires that provide only a temporary pleasure and those that are likely to lead to long-term happiness. He even included among the pleasures that mortal humans may eventually experience 'the supreme happiness from which every disturbance and pain is absent'; although that is normally reserved for God alone, it may also be granted to those whom 'God transfers into a better life' in the beatific vision (1658: II, 717a).

Gassendi also found room for Aristotle's theory of the virtues, if virtues are understood as acquired habits or dispositions that are conducive to experiencing appropriate pleasures. Chief among the virtues is prudence, which he defined as a facility for calculating rationally the most effective way to realize one's objectives.[31]

> Prudence is a moral virtue, which moderates correctly all the actions of one's life; by distinguishing between what is good and evil, useful and harmful, it prescribes what one ought to seek or avoid and thus establishes human beings in a good and happy life. (1658: II, 743b)

By borrowing explicitly from Aristotle and amending his account of virtue as a mean, Gassendi avoided the objection that he endorsed an unsophisticated version of hedonism. Bernier summarized this qualification as follows:

> We have often explain'd our selves concerning Pleasure . . . that when we say Pleasure is the End, the Happiness and the chief Good, we mean not hereby brutish and sordid Pleasures, but only a calm and sedate Temper of the Mind, and the freedom of the Body from Pain. (1699, 146)

For Gassendi, therefore, even the love of God was motivated by pleasure and the anticipation of a heavenly reward (1699, 112), and the rewards of the afterlife were described

[30] 'Epicurus was of the opinion that no other pleasure [*voluptas*] is the end than that which consists in stability or a quasi-repose, namely freedom from pain and tranquility' (1658: II, 682).

[31] Gassendi devotes Book II of the *Ethics* to the virtues (1658: II, 736–820), in which chapter II discusses the virtue of prudence (1658: II, 743–65).

as an enduring, ultimate pleasure. These normative assessments of the relative value of different kinds of pleasure, which Mill had to address two centuries later, seem to have been based on the experience of those who enjoy them or—in the case of the beatific vision of God, which Gassendi had not experienced—on religious faith. 'Our life . . . is to be computed, not by its length, but by the good Qualifications and Pleasures that attend it' (1699, 21).

Gassendi's Epicurean hypothesis about human motivation was integrated into a theological account of God's creation and, in particular, of God's institution in human beings of natural desires that, if followed prudentially, would be conducive to a happy life and a rewarding afterlife. God cleverly linked specific pleasures with particular actions in such a way that actions that effect a greater happiness are associated with greater pleasure:

> We should marvel that the ingenuity of the most wise Artificer of nature was such that, since every action—even those that are natural—would be burdensome, he seasoned every action with a certain allure of pleasure; and he willed that the accompanying pleasure would be proportionately greater insofar as the action would be necessary for the conservation of either the whole race or an individual animal. (1658: II, 701b)

This theology of creation made it possible, therefore, to interpret natural human desires as expressions of God's commands. Accordingly, Bernier reported Gassendi's reply to the 'abominable' opinion that it is morally permissible for human beings 'in some cases' to take their own lives:

> The Opinion of the Stoicks is not only contrary to the Sacred Precepts of our Religion, but is also contrary to Nature, and right Reason . . . for nature furnishes all sorts of Animals with a Natural love of Life, and there is none besides Man . . . but labours to preserve Life as much as possible . . . (1669, 29–30)

The reasons given, however, were less than persuasive. Gassendi assumed that all human beings share responsibility for the continuation of the species as a whole, and therefore that individual members act selfishly and irrationally by terminating their own lives without regard for other members of the human race. They are 'injurious to God, and Nature, who being design'd and order'd to perform a certain Race, stop in the middle of their Course of their own accord' (1669, 30). In this argument divine commands, as expressed in what is good for humanity in general, determined what is morally permissible for each individual member rather than the pleasure of individuals that Epicureans claimed was the end of all human actions.

Gassendi also addresses Cicero's objection that the obligations of justice often fail to coincide with what is in the interests of an individual, whether or not the latter is defined as pleasure or the avoidance of pain. Epicurean justice was explained as a function of the social context in which individuals pursue their own happiness; social co-operation, therefore, was understood as a necessary means to realizing individual objectives. Gassendi argued accordingly that since it is natural for each individual to

seek their own happiness, it is equally natural to co-operate in establishing the means necessary to pursue that objective. He defined what is 'just' or 'right', therefore, in terms of two conditions: whatever is useful for the common good, and what has been prescribed by common agreement in a society (1658: III, 87b). This fails to consider, however, what one should do if self-interest and the common good conflict in particular circumstances (to which I return below, 6.9).

Gassendi acknowledged that 'only what is done deliberately and freely is subject to praise or blame, and neither is appropriate if something occurs as a result of chance or necessity' (1658: II, 821a). He therefore needed to provide an account of free human actions, for which agents could be held responsible, within the atomist assumptions that framed his natural philosophy. The swerve to which Lucretius appealed could hardly have provided enough freedom to support moral responsibility, unless swerving atoms were also subject to moral evaluation.[32] The solution was ready at hand in the dualism to which Gassendi resorted whenever he discussed mental events and his religious faith: 'the opinion of Democritus should be rejected, insofar as it cannot be reconciled by any means with the principles of our holy faith . . . and it is manifestly repugnant to that light of nature by which we experience that we are free' (1658: II, 840a). Neither faith nor experience, however, provided an explanation of what freedom means and how it is exercised.

Gassendi rejected the concept of freedom that Descartes attributed to God, according to which an action could be free even if (or especially if) the agent is not indifferent in relation to the options available.[33] For Gassendi, an action is free only if the agent assesses the options available and, following a deliberation, makes a judgement that one action is better than another. 'Liberty therefore seems by consequence to be first and primarily in the Understanding, and secundarily or dependantly in the Will' (1669, 374–5). There is little explanatory gain, however, in calling the will 'blind' and assigning the primary role in making free choices to the understanding. Gassendi had already defined the framework within which ethical choices are made as the natural desire of human beings for pleasure and the avoidance of pain—neither of which results from free choice as he had defined it. The scope of Gassendist freedom, therefore, was limited for each individual to understanding how best to realize these objectives within the range of options available to the agent in specific circumstances. That was a matter of understanding one's environment, and guiding one's actions by what Gassendi called the light of the understanding.

[32] 'Thus, I repeat, the atoms have to swerve a little/But only by the smallest possible degree, a tittle' (2007: Bk II, 242). For Epicurus's theory of freedom, see O'Keefe (2005).

[33] Bernier summarized the distinction as follows: 'I know some are of Opinion, that the Will is then principally and altogether free, when it is so fixed and resolved on any certain thing, suppose, for Example, the sovereign or chief Good and Happiness, that it cannot be bent or diverted to any other thing, that is to say, to Evil . . . But . . . there is this difference between a willing Action and a free Action; for a willing or spontaneous Action is nothing else but a certain propensity or impulse of Nature, which impulse may be effected without any Reasoning; whereas the free Action supposeth and depends upon some Reasoning, Examination, Judgment or Choice preceding' (1699, 375).

The revival of Epicureanism in France may therefore be understood, not as a radical departure from the traditional ideal of a Christian life, but as recognition of the central role of human passions as subjective factors that guide human behaviour. While one may speculate about the objective goods of human conduct, none of them affects human behaviour except to the extent that it seems conducive to the subjective experiences that are described as pleasure or happiness. For many of its Christian exponents, therefore, Epicureanism prescribed exactly the same behaviour as that recommended by Christian Stoics, but described it from the subjective perspective of the agent's experience of the relevant good. Even the paradise promised to those who comply with the moral law could be described objectively as the beatific vision or subjectively as the happiness or fulfilment of human aspirations.

6.7 Ethics for Women

Many early modern moral guides were written explicitly for men, who were advised to avoid the company of women because they were allegedly occasions of sin or they triggered passions that only the most virtuous could hope to control. Thomas à Kempis's *The Imitation of Christ*, which appeared first in 1486 and subsequently rivalled the Bible in popularity and in the frequency of printed editions, advised its male readers not to become familiar with any woman but to commend all virtuous women in general to God (I, 8, i). Although this male bias survived in Christian Stoicism as another expression of withdrawal from the non-spiritual world, the renewed interest in the passions and the virtues that restrain them, which characterized moral reflection in the seventeenth century, prompted discussion of whether women should practise the same virtues as men or whether their distinctive emotional lives required a special moral training. Jacques du Bosc* addressed this question in detail in *L'Honnête Femme*.[34]

Du Bosc's fundamental thesis was implicit in traditional Christian doctrine—that men and women are both subject to the same moral law. He asked rhetorically in Part III (1636):

> Are there different laws for women? Is there a different philosophy for women in the colleges or distinct sermons in the pulpit? Are there particular vices or virtues for each sex? Do they have a different soul than ours? Do they have a different purpose? Do they have another means of reaching it? . . . I have shown only too clearly that our differences are in our sex and not in our virtues. (2014, 167)[35]

[34] Part I of this three-volume work appeared in 1632, to which two further volumes, Parts II and III, were added in 1634 and 1636. It was republished in fifty editions up to the eighteenth century. Du Bosc (2014) is an abridged English translation of selected essays from the three parts. While Furetière (1690) defines the *honnêteté* of women as 'chastity, modesty, propriety and restraint', Du Bosc extended its scope to include virtues that were traditionally associated with men.

[35] This refers back to the 1632 edition, in which he asked: 'Is there a separate moral code for women? Is there another Christianity just for women? Must we, in order to instruct women, invent a new religion or

The implied answer was that women were subject to the same moral law as men, which invited further questions about how women could realize the ideals to which they were bound equally with men.

According to Du Bosc, moral education is a necessary condition for the practice of the virtues. One cannot choose good rather than evil if one does not know how to distinguish them: 'women who do not possess enough judgment to recognize vice also do not possess enough to choose virtue' (2014, 97). Moral philosophy is therefore necessary for both sexes, and if men are reproached for failing to study it adequately, then women would be even more negligent if they failed to study it at all, 'since they are required, like men, to know the difference between good and evil' (2014, 170). In fact, of all the sciences, 'none is more appropriate for women than that of moral philosophy' (2014, 193).

Du Bosc considers the familiar objection that women may not need to study virtues and vices themselves; they may be guided by others who are well informed about moral issues and thereby realize the simple piety that is appropriate to the uneducated. There were two replies to this. One response was often voiced in the egalitarian literature—that those who are led by others must choose whom to follow, and even that degree of discernment requires knowledge (see Chapter 8 below). Secondly, Du Bosc accepts that individual women (just like men) have different temperaments, and they need to adjust their moral education to their own individual needs. 'How much better would women succeed in all of their endeavors, if they knew how to recognize the excellence or the flaws of their temperament?' (2014, 138). This coincided with the advice of Francis de Sales, whom Du Bosc quotes favourably as having written *Introduction to the Devout Life* (1608) especially for women readers—not because he believed that they were subject to a distinct moral law, but because they needed different advice about how to comply with the same moral law as men.

Du Bosc's comments on human nature, as instantiated in women, acknowledged the limitations that it imposes on their moral life. He accepted, in Part II of *Honnête Femme*, that it is impossible to change one's natural passions and that one can do no better than control them. 'Wanting to subjugate one's nature completely is like trying to jump over one's shadow or to escape from oneself. We can mortify our natural passions, but we cannot make them die' (2014, 139). His advice about how to control passions, however, was borrowed entirely from the Christian tradition, and assumed that religious education was the appropriate basis for morally good conduct. Since 'it is absolutely impossible in our day to make an *honnête femme* without the Christian religion' (2014, 166), those who 'lack religion' (2014, 68) are morally corrupt and should be avoided.[36] This reflects the advice he offered about the virtues that are appropriate

a philosophy specifically for women? Do preachers not speak of vices and virtues at once when they preach to both sexes? . . . since men and women are subject to the same laws, the teachings can be the same, provided that the examples are specific' (2014, 61).

[36] This recommendation may be more relativist than it appears. In this context Du Bosc assumed that the education of *honnêtes femmes* in any century required that they practise the religion of their own country and, accordingly, the relevant religion for France in the seventeenth century was Christianity.

for women and the exemplars to whom he directed their attention. Women were advised to exercise the same restraint when speaking as Mary's infrequent speaking in the New Testament suggested (2014, 68); he opined that chastity is 'natural' for women (2014, 88); and in his commentary on 'marriage and celibacy', Du Bosc recommended that women obey their husbands and conform so completely to their wishes that they become almost like their husbands' optical images in a mirror (2014, 158).

The specific advice about virtues that Du Bosc considered appropriate to married women were traditional and reflected the customs of the time, although he also acknowledged that it would be unfair to demand that women be faithful to their husbands while married men enjoyed the freedom to commit adultery (2014, 89). On this question, Calvinist theologians agreed with their Catholic counterparts.[37] Moise Amyraut, a prominent Arminian professor at the Calvinist academy at Saumur, argued on natural law grounds against bigamy and polyandry in his *Considerations of the laws by which nature has regulated marriages* (1648).

The link between women's moral conduct and their moral education was entwined with a more basic and wide-ranging political and cultural dispute about the education of women, which is discussed further in Chapter 8. Louis de Lesclache (1600?–71) offered a conservative scholastic answer, in *The Benefits that Women can Gain from Philosophy and especially from Ethics, or a Summary of this Science* (1667). Lesclache accepted that if women were educated in morality, they would 'be very happy, would give great satisfaction to their husbands by their good housekeeping, and the public would benefit greatly . . . by the perfect education of their children' (1667, 14).

The discussion of women's ethics highlighted a disputed question that had been fundamental to Christian ethics for centuries, namely whether it is sufficient to conform one's observable conduct to the rules of Christianity or whether genuinely moral conduct requires an agent to act because they choose to obey the moral law. The metaphor of a shepherd guiding compliant sheep suggested the conformity of an ignorant peasant or woman to the behavioural norms of the society in which they live. Christian theologies of redemption, however, pointed towards a much more internal conformity to the moral law because it was recognized as the moral law. If men were expected to realize the latter ideal, it was inevitable that Christian women had to do likewise and that the fulfillment of their moral duties required the same level of understanding and moral education as their male counterparts.

6.8 Blaise Pascal: Ethics for a Corrupt Nature

Pascal offered a radically different example of an eclectic ethics, the controlling theme of which was a theological interpretation of human nature that he borrowed from

[37] Le Grand wrote, in *The Divine Epicurus*: 'Nature, knows no difference of Sex, what is forbid to the one is not permitted to the other, and he unjustly exacts Fidelity in his Spouse, who prophanes that he has promised her by Illegitimate and blamable Conversations' (1676, 43).

Jansenism and, indirectly, from Saint Augustine. When presenting his opinions, Pascal also communicated a degree of certainty about his own religious and moral convictions that resounded unequivocally in the combative rhetoric and sparkling style of his essays. Among the ethical intuitions to which he seemed especially committed, in opposition to Jesuit casuists, was the assumption that some actions are intrinsically or objectively evil, and that their immoral character is universally recognized as a datum of natural law.

Pascal's first publications about ethics appeared in a series of letters that he published anonymously over a period of fourteen months (January 1656—March 1657), in which an allegedly informed correspondent in Paris communicated contemporary news about religious and moral disputes in the capital to a friend in the 'provinces'. These eighteen letters were subsequently collected and appeared together as the *Provincial Letters* in 1657. The letters addressed some of the most fundamental issues about grace and free will that had divided Christians since the Reformation, and they represented a direct attack on the moral laxity that Pascal associated with Jesuit confessors, whom he accused of diluting the strict ethics of the Gospel to accommodate the behaviour of privileged members of French society.

In this confrontation with Jesuit casuistry, Pascal argued that some human actions (such as killing another human being) are intrinsically immoral, independently of the circumstances in which they occur or the intention of the agent:

> The permissions to kill that you grant in so many contexts show that on this point you have so forgotten the law of God, and so extinguished the light of nature, that you need to be restored to the basic principles of religion and common sense. For what could be more natural than this opinion: an individual has no right over the life of another? (1967, 207)

He wrote in his Fifteenth Letter about the 'law of God, nature, and the Church' and described the opinion that an employee may steal from their employer to compensate for inadequate wages—which was attributed to a Jesuit confessor—as 'an unlawful, pernicious doctrine, contrary to all laws, natural, divine, and human' (1967, 100). This appeal to natural law, however, was merely a way of describing the moral evil in question as objective, without implying that the immorality of the action could be known by reason. Pascal seems to have been ambivalent about the epistemic status of ethical claims, and offered two alternative accounts of them.

Pascal's foundational claim, with which all other opinions had to be consistent, was the corruption of human nature after the Fall. This was a religious belief rather than a philosophical claim. In fact, it was a fundamentalist interpretation of Saint Augustine's theory of grace that differed only stylistically from that of Calvin. Whereas Calvin expounded his views in successively expanded editions of the *Institutes*, Pascal hinted at his convictions in aphoristic notes in posthumously published notebooks, the *Pensées*, which have confounded modern editors who attempt to discover even the order in which the entries were composed. Nonetheless, Pascal's other writings confirm the hints in the *Pensées* that human nature is so corrupt that it could never provide

adequate moral guidance without supplementary divine grace. Thus he writes that 'there are undoubtedly natural laws but this fine reason, having been corrupted, has corrupted everything' (Fr. 20/56: II, 560). For that reason, in contrast with the Thomist theory that some general principles of natural law are capable of being known by reason alone, Pascal understood natural law as merely a residual shadow of a moral order that had been ordained by God at the creation of the world; while it was known to human beings in their pre-lapsarian state, it is no longer accessible except through revelation.

> From my point of view, I admit that once the Christian religion reveals this principle, that human nature is corrupted and has fallen away from God, it opens our eyes to see the nature of this truth everywhere. For nature is such that it exemplifies everywhere a God who has been lost, both within man and outside man, and a corrupt nature. (Fr. 708/436: II, 709)[38]

Rather than being embarrassed by the apparent incomprehensibilty of Original Sin and the corruption that it allegedly wrought in human nature, Pascal seemed to relish the paradox or mystery of what he believed.

> For there can be no doubt that nothing shocks our reason more than saying that the sin of the first man made guilty those who, far removed from this source, seem incapable of having participated in it. This contamination seems to us to be not only impossible but it also seems to be unjust; for what is more contrary to the law of our miserable justice than to damn eternally infants, who are incapable of willing, for a sin in which they seem to have so small a part that it was committed six thousand years before they were born? (Fr.164/122: II, 581–2)

One is tempted to modify the text of the final sentence to read that such infants had no part at all (rather than a small part) in Adam's sin, and that the mythical sin must have been committed much earlier if it is attributed to the first human beings. But Pascal's fundamentalist faith trumps any such 'miserable' intuitions about justice. The incomprehensibility of the doctrine is almost a mark of its divine origin, since many dogmas of Pascal's religious faith were unintelligible to a weak human reason: 'Incomprehensible that God should exist and incomprehensible that he should not . . . incomprehensible that original sin should exist and that it should not' (Fr.656/665: II 816). Pascal's ambivalence about the ability of human reason to understand these 'mysteries' suggests the following objection; if our infirm conceptions are so inadequate that we cannot use them to understand justice and responsibility, why are other concepts—including those used by Pascal to express fundamental theological beliefs—adequate to speak coherently about matters that he acknowledged are completely outside human experience?

Pascal thus effectively reversed the relation between reason and faith on which generations of Christian apologists had attempted to establish a bulwark against unbelief. His fundamental belief was a religious interpretation of human nature and

[38] The corruption of human nature is repeated often in the *Pensées*: Fr. 364/4 (II 544), Fr. 344/395 (II 675), Fr. 694/436 (II 709), and in the title of a bundle of fragments (II 615).

history: 'that nature is corrupt, [shown] by nature itself. That there is a Redeemer, [shown] by Scripture' (Fr. 364/4: II, 544). He wrote in his *Factum for the Curates of Paris* in 1658 that 'true morality, which ought to have nothing other than divine authority as its principle' is inconsistent with the rationalism of Jesuit casuistry; if the latter were successful, 'the law of God would be destroyed and natural reason alone would be our guide in all our actions' (I 834, 839). His assumption, evidently, was that natural reason is inadequate to that challenge.

Thus, although Pascal rejected the suggestion that one could come to know the moral law by understanding nature, he emphasized the objectivity of his moral convictions by rejecting the Jesuits' account of 'probable opinions'. Probabilism was a rule of thumb adopted by casuists when advising those who consulted them about the permissibility of specific actions. According to Pascal's summary of Jesuit casuistry, 'anything approved by well-known authors is probable and safe in conscience' (1967, 204). That meant that, even if most authorities taught that some action was immoral, it would be morally permissible for individuals to follow the advice of another author who held the opposite view as long as it was probable. Pascal objected that such a selective use of alternative moral casuists leads to moral relativism because one's conscience is no longer guided by whether an action is or is not morally good but by the mere opinions of various authors who inevitably disagree.

Another sign of Pascal's theologically inspired moral realism was his rejection of the theory that one could modify the morality of a given action by redirecting one's intention to some end or objective that is morally acceptable. Pascal attributes to the Jesuits the 'method of directing the intention, which consists in proposing something that is allowed as the objective of one's action' (1967, 104: I 649). For example, it is never permissible to kill another out of revenge, but it may be permissible to do so to protect one's honour. That suggested, to Pascal at least, the mistaken view that the action as performed by an agent lacked any intrinsic moral character, and that the intention of the agent alone 'determines the quality of an action' (I 679). It would frustrate the function of the moral law, he argued, if the same action may be performed with different intentions and if one could substitute a morally acceptable intention for one that is morally impermissible, because the types of action that it was meant to prohibit could then be performed blamelessly merely by modifying one's thoughts![39]

Having argued for the objectivity of moral values, which originate in divine commands, Pascal also needed an account of why human agents may be held responsible by an avenging God for a deed (Adam's sin) that allegedly occurred thousands of years before they were born. All the insoluble conceptual tangles of Augustine's account of free choice (Augustine, 2010) were reworked by Pascal in an effort to explain how human agents, after the Fall, may be held responsible for their sinfulness even if their

[39] Mersenne reported more favourably the scholastic theory that the intention with which an action is performed determines its moral character: 'the intention [is] … the soul of all our actions, which are good if they are performed with a good intention and evil if done with a bad intention; or, if an action is evil in itself, the good intention with which it is performed reduces its malice' (2002, 30).

failure to obey the moral law resulted from God's decision to withhold the grace that is necessary to make compliance possible. Here again he modified the concept of what is just so that God's arbitrary damnation of millions of people would not be unjust. Pascal argued, in *Writings on Grace*, that 'God could not justly impose precepts on Adam and innocent human beings without giving them the necessary grace to fulfil them' (II 287). But a divine action that would have been unjust before the Fall became just afterwards. Human beings then lacked the 'necessary grace' to comply with the moral law, but they deserved that condition as punishment for the Fall. 'In the state of corruption, God could justly damn the whole mass of mankind; and those who continue to be born today without being rescued from that state by baptism are damned' (II 261).

Since so many post-lapsarian individuals are morally bound to obey commands although they find it impossible to do so, Pascal effectively denied the principle that 'ought implies can'. The Council of Trent taught authoritatively, in 1547, that 'God does not command what is impossible' because it wished to reject the Calvinist theory that 'God's commands are incapable of being observed even by someone who is justified and established in grace' (Tanner 1990: II, 675, 680). Pascal commented on this decree, however, that 'there is no necessary connection between possibility and power' and that 'all the things that may happen to someone are not always within the power of that subject' (II 240). He illustrated this by the example of his own notoriously poor health: while it was possible for him to live to the age of sixty, it was not within his power to make that happen. Likewise, he argued, it may be 'possible' for human beings to obey divine commands although it is beyond their power to do so, because they lack the necessary divine assistance that is withheld freely and justly by God. In that case 'possible' seemed to mean 'logically possible' or counterfactually possible; however, either meaning was too weak to explain how human agents could be morally obliged to obey commands with which they are incapable of complying.

6.9 Justifying Ethical Norms

If French philosophers in the early modern period had been asked explicitly to justify their ethical views, they would probably have replied with two assumptions—one in relation to the ends of human actions, and the other in relation to knowing appropriate means for achieving those ends. Their first assumption was that, while individual actions may be directed to realizing specific short-term ends, there must be one ultimate end for the sake of which all human actions are performed. Without that assumption, an ethical life would involve finding a reasonable balance between competing goals. The source of such competition could be twofold. If each human agent were considered solely from the perspective of what would be in his or her best interests—which could be clarified, at least partially, by a 'nature' that was widely invoked as a guide to human action—there may be many distinct values that are impossible to realize in any given situation or action, and the agent may have to choose between them without being able to apply a single criterion to assess their competing merits.

Secondly, as Cicero pointed out in his critique of Epicureanism, the pursuit by each agent of their own interests may clash with the competing interests of others. In that case, agents would have to consider if justice required them to forsake what is in their own interests because they have more important obligations to others. Neither of these questions, concerning incompatible personal ends or the potentially competing claims of justice, was adequately addressed in early modern France.

One reason for failing to query the uniqueness of the ultimate end of human action was the almost universal assumption of a Christian interpretation of creation. Almost all French ethicians believed that God created human beings with a specific purpose, and that their legitimate and feasible goals were determined by that creative decision. They considered apparent differences in how that goal was described, objectively or subjectively, as mere variations on a common theme. As Descartes argued, one could define the ultimate end of human beings as the beatific vision or as the pleasure or enjoyment that such a vision would provide for those who experience it. That ultimate end directed human behaviour to comply with divine commands and thereby realize their own salvation—a theologically informed egoism. One's primary moral obligation was to save one's own soul.

The dominant Christian vision of each person being accountable to God for their compliance with the moral law did not preclude consideration of others, and did not therefore exclude justice as a Christian virtue and possible conflicts between self-interest and duties towards others. But it reduced justice to an intermediate means by which agents could pursue their ultimate, self-regarding and unique end successfully. Thus potential conflicts between the interests of one agent and those of others were smoothly eliminated by assuming that social co-operation is a necessary condition for each agent to realize their own long-term goal, whether that is defined in terms of happiness or the perfection of one's soul. Thus Gassendi defined justice as a means to achieve the peace of mind that partly defines a good life, because a failure to respect the rights of others would entail a permanent threat of punishment by civil powers or God. An alternative reconciliation was to merge the interests of individuals with those of the race or, at least, with those of one's own nation so that an individual's duties of justice coincide with their personal interests. In the course of his extensive correspondence with Princess Elizabeth, Descartes had suggested that she interpret her personal woes within the wider perspective of the human species. He recommended that although the interests of each person are 'distinct in some way from those of everyone else', individuals should 'always prefer the interests of the whole, of which they are a part, to their own personal interests' (IV 293). Elizabeth objected that people are more likely to give greater weight to their own immediate needs, of which they have a clear knowledge, than to the less well-known interests of others in the society to which they belong, and she asked her correspondent to justify his alternative, altruistic principle. None was forthcoming, however.

In response to the second question—about knowing how to achieve what was generally acknowledged as the unique end of human actions—philosophers either

assumed or claimed that there is no better guide than customary practices that have been confirmed by experience. That was certainly the reply favoured by those, such as Montaigne and Charron (Chapter 2), whose epistemology was significantly influenced by scepticism. But many others argued likewise. When challenged about the epistemic foundation of his ethical claims, Descartes referred to the familiar distinction between things that can be known with relative certainty, and other matters about which one has to make a decision with 'mediocre knowledge'. 'Leaving aside what we are taught by the faith'—which he described as certain—'we should endorse the opinions that seem most probable to us about practical issues' (IV 295). Gassendi had relied on a similar distinction between the relative adequacy of 'instinct' for judging moral questions, since it is formed according to 'preconceived notions derived from our laws, customs, acquaintances, education, etc.' and the inadequacy of the same instinct for discovering 'truths of nature'. In the latter context, he argued, 'instinct is . . . a very feeble guarantee and a very unstable witness'.[40] In ethics, however, there is no more reliable guide than custom or practice.

The infrequency with which the justification of ethical views was addressed in early modern France highlights the congruence of the ethical evaluations of particular actions that were made even by those who adopted apparently inconsistent theories. The novel development in this period in France was undoubtedly the recognition of the extent to which human passions or emotions are significant factors in explaining human behaviour, both good and ill.[41] Since fundamental passions are innate, they were widely accepted as natural guides to what constitutes a good life—in Descartes's words, we are 'taught by nature'—and were also described as potentially misleading when not controlled by reason. Most authors accordingly described their preferred ethical principles are being 'natural', which implied minimally that it was not impossible for human agents to implement them. Insofar as a good life involved the satisfaction of innate human interests, however, actions that were consistent with human nature were also likely (in general) to contribute to a good life. Many authors added connotations of duty to what they described as 'natural' by interpreting the natural world as an expression of God's creative plans and, in particular, by reading human passions as implicit divine commands directed to creatures by their creator.

The fact that early modern French philosophers appealed to disparate ancient philosophical theories—which had been considered incompatible and as implying inconsistent applications by their original proponents—to support almost universally accepted Christian views suggests that those theories were used merely as supporting authorities rather than as foundational principles from which inconsistent moral decisions might result. Antoine Le Grand (1629–99) provided an exemplary illustration of this selective use of ancient sources. Le Grand was a French Franciscan priest who spent most of his life in England, where he helped to popularize Cartesian natural

[40] Gassendi to Elia Diodati, 29 August 1634 (1972, 111).
[41] See James (1997).

philosophy. His initial sympathy for stoicism, as expressed in *The Wise Stoick* (1675a) was later replaced by an equal enthusiasm for Epicureanism in *The Spiritual Epicurus, or the Empire of Pleasure over the Virtues* (1669), in which he argued that pleasure was the end of all human actions, that it was natural, and that its enjoyment was compatible with the virtues. Le Grand claimed that nature is so prudent in everything it does and so lawlike in all its works that it would be impossible for human beings to be mistaken if they used it as a guide to conduct (1669, 8). He conceded that those who misunderstood Epicurus could object that, if pleasure were the goal of human action, everything would be permitted. But Le Grand saw no merit in that objection; 'nature is not opposed to the laws of God, and it abhors everything that He forbids' (1669, 13). The consistency of 'nature' and divine commands was explained, as usual, by the fact that God created nature.

Without acknowledging any change in his ethical views, however, Le Grand grafted them onto another theoretical source in the *Institution of Philosophy* (1675b), which was allegedly based on Cartesian principles but in fact was almost completely plagiarized from Pufendorf's *The Duty of Man and Citizen* (1673).[42] In this version, Aristotelian virtues assumed a central role and the moral goodness of an action was defined as 'nothing other than the conformity of that same human action with right reason' (1675b, 656).[43] Evidently, Le Grand may have changed his mind over time, or he may simply have been an unrepresentative author who failed to realize the significance of his varying theoretical commitments. The more likely explanation of his appeal to Epicurean and Stoic sources, however, was that he did not think of them as mutually inconsistent because they did not represent fundamental principles by which he justified moral decisions about particular types of action. Since they were mere theoretical props, when proposing one, he felt no need to reject others. Thus he argued in *The Wise Stoick* that 'every one desires to live happily' (1675a, 49) and, in *The Divine Epicurus* that Stoicism and Epicureanism were compatible, because 'their aims are one and the same and both are Rivals to the same Mistriss' and that 'Reason is Man's only good' (1676, 8, 97). He added, for good measure, that 'to be vertuous is sufficient to secure us from misery' (1676, 50), so that the practice of the virtues alone would deliver the happiness that Epicureans desired and the felicity to which Seneca aspired.

The fundamental principle for all the ethicians surveyed here was a dualism of spirit and matter, and a Christian concept of the ultimate good of human action which implied (in the disparate languages of the ancients) that the spiritual is always more important, more pleasurable, or more obligatory than what is material, and that divine commands specify duties, towards oneself and others, that are categorical.

While ethical and moral language thus oscillated ambivalently between what is in one's best interests and what one is required to do, the extent to which human actions

[42] Mautner (2000, 220–3) details the extent to which Le Grand borrowed from Pufendorf.

[43] Le Grand defined right reason as follows: 'a true judgement about everything that is free of all deceptive opinions, by which the laws of God and of nature are recognised, and by which one discerns how to act prudently and rightly according to the prescriptions of the law in all circumstances' (1675b, 656).

are sufficiently within an agent's control that he or she may be held responsible for them assumed a new urgency. Pascal represented an extreme version of an independent, objective source of moral obligation in divine commands, and a paradoxically radical assessment of the inability of human agents in their natural condition to comply with the moral law. Such a theological morality was not subject to rational evaluation; it was based on Jansenist religious faith. Most authors, however, modified the scholastic theory of a spiritual faculty of choice (the will), which had traditionally been assigned the function of controlling human behaviour and thereby determining the ethical character of actions. Without abandoning completely talk about a 'will', they reduced the scope of its competence to calculating rationally how to realize human objectives and/or to comply with divine commands. Since human behaviour exhibits patterns that are analogous to the laws of natural philosophy, the language of natural law reduced (without eliminating) the conceptual gap between 'is' and 'ought'. Human nature dictates how we act and also guides the evaluation of what is in our best interests. For French ethicians in this period, the 'starry heavens above me and the moral law within me' (Kant 2015, 129), to which Kant referred at the conclusion of the *Critique of Practical Reason*, were not two distinct worlds but the same, divinely created world viewed from different perspectives.

7

Political Philosophy

The Source and Limits of State Authority

'Peoples were not created for magistrates; on the contrary, magistrates were created for peoples.'[1]

7.1 Introduction

Louis XIV assumed the full powers of king in 1661, following the regency of his mother, Anne of Austria. The experience of civil war during the *Fronde* (1648–53), and the memory of intermittent civil and religious wars in France during the previous hundred years, motivated Louis to unite his kingdom as a centralized nation-state. The political model required to complete the work that had been initiated by Richelieu was readily available in Jean Bodin's theory of absolute sovereignty, which was published in the aftermath of the massacre of St Bartholomew (1572). Bodin's monarchomach[2] critics had articulated with equal conviction and greater clarity the arguments for constitutional limits on a monarch's powers, but they faded into oblivion during the reign of the Sun King. Nonetheless, the choice between these two models of royal jurisdiction—despite the temporary eclipse of one of them—had raised many of the fundamental constitutional issues that defined political philosophy in Europe for at least two centuries.

The political debate in sixteenth-century France addressed the following questions: what are the source and limits (if any) of legislative authority in a state? Does this authority derive directly or indirectly from God and, if indirectly, is it vested initially in all the people (or a specific subset of a state's residents) and then delegated to their rulers? Do individual citizens or subjects have a moral obligation to obey the laws of a state, or are there some circumstances in which that obligation is outweighed by an incompatible, more important obligation? If rulers abuse their legislative authority, may citizens revolt, may they engage in passive disobedience, or must they simply tolerate the actions of tyrannical rulers? Should all the powers of a lawful state be vested

[1] Bèze, *Du Droit des Magistrats* (1574, 9–10).

[2] William Barclay (1546–1608) introduced the Latin term '*monarchomachus*', in the title of his book *De regno et regali potestate adversus… et alios monarchomachos* (Paris, 1600), to describe those who argued that it was legitimate to take the life of the king in certain circumstances.

in the same agent—e.g., the king—or should different powers of a state be distributed among independent agents, such as those involved in applying laws to subjects who fail to observe them? In the course of addressing these questions, French political theorists also contributed to conceptual changes that underpinned the expression of competing answers. One of the most obvious examples of conceptual change was the novel use of the word '*état*' to designate a body of people who occupy a given territory under a sovereign government.

The concept of a state in the modern political sense had begun to emerge in the work of Machiavelli, who transformed the term '*lo stato*' from designating merely the condition of a republic to something closer to a republic and its political structures. The corresponding term in French, *état*, was used similarly by Bodin to refer to the condition of a kingdom ('*l'estat du royaume*': 1576, 136). He also used it, more frequently, to refer to the three estates (the precise membership of which was disputed), which were said to have at least an advisory role in governing the kingdom. The novel usage of *état* emerged when Bodin wished to discuss alternative types of sovereign political units that existed in the sixteenth century or when he expressed concern about the conservation or destruction of a commonwealth. He argued that there were only three kinds of state ('*trois estats, ou trois sortes de Republiques*: 1576, 219), namely a monarchy, an aristocracy, or a democracy, and his *Commonwealth* was concerned about the preservation of a state or its destruction ('*la conservation de l'estat*'; '*la ruine, ou l'asseurance d'un estat*': 1575, 151, 199).[3] According to this usage, 'state' was synonymous with 'commonwealth'.

These two factors—the sheer range of questions raised in this political debate, and the evolving conceptual framework in which they were expressed—constituted a serious challenge to finding plausible reasons to support competing theories. Nonetheless, all those involved endorsed the assumption that God's decisions were the ultimate criteria by which questions about the authority of a commonwealth may be resolved, and that the Scriptures were the primary means of discerning God's will. Thus, even as late as 1670, when Bossuet was appointed tutor to the Dauphin, he began to compose lessons in political theory that eventually appeared (in 1709) as *Politics drawn from the Very Words of Holy Scripture* (Bossuet, 1990). There was nothing unusual in Bossuet's choice of Scripture as the source of his political theory. Luther and Calvin had appealed to the same source and thereby set the reformers' agenda for political theorizing in France for at least a century.

The Bible, however, although primary, was not their only authority. They also invoked history, natural law (however understood), and principles of civil law that had become accepted as binding custom. The result was a heady mix of citations from the Bible, from ancient history (many of which were misrepresentations of what had actually happened), from laws (both ancient and contemporary), and from customs that were deemed to have acquired the binding authority of law. At the same time, many

[3] The developing usage of the term is recorded in Furetière (1690) under '*estat*'.

Catholic political theorists appealed to natural law and looked to two of its most prominent Jesuit exponents, Francico Suarez and Robert Bellarmine, to defend the universal jurisdiction of the papacy and the limited power of a king. Their interpretation of natural law, however, was as parasitic on their reading of the Bible as that of Calvinist monarchomachs. With such a range of potentially inconsistent authorities and the obvious lack of agreement about how to interpret Scripture, it was not surprising that French political commentators of the period framed theories that justified the decisions of their preferred factions and convicted their opponents of both treason and heresy.

7.2 Reformation Political Theory

Although Calvin was evidently the primary exponent of Reformation political theory in France, he borrowed the biblical exegesis on which he relied from the original work by Luther in the early decades of the sixteenth century. The most prominent text to which Luther appealed was Romans 13:1–7, in which St Paul wrote: 'Let every soul be subject unto the higher powers. For there is no power but of God: the powers that be are ordained of God.'[4] Luther's interpretation of this and other biblical passages about civil powers was guided by his fundamental understanding of inherited human sinfulness, and of the Christian church as a community of believers whose personal faith was the only means to achieve salvation for each individual. From this perspective, a 'true Christian' was required to interpret their worldly condition in light of the Scriptures and to accept that condition unquestioningly—even if they were enslaved—as an expression of God's ineffable providence.

Luther outlined his theory of civil authority in 1523, in *Temporal Authority: To What Extent Should it be Obeyed*. 'If all the world were composed of true Christians . . . there would be no need for or benefits from prince, king, lord, sword, or law' (1962, 89), because they would all spontaneously obey the law and co-operate socially and politically. According to this theology, civil law is required only because of the corruption of human nature and 'is in the world by God's will and ordinance' (1962, 85) as a corrective measure.

Luther concluded, accordingly, that 'Adam's children' were members of two distinct societies, 'God's kingdom under Christ and . . . the kingdom of the world under the governing authority' (1962, 105). Having assumed that Christians were bound always to submit to secular authorities, he asked 'how far temporal authority extends' (1962, 104). He replied that the two kingdoms (of Christ and the world) had two distinct kinds of jurisdiction: 'the temporal government has laws which extend no further than

[4] Such disparate commentators as Bellarmine and Hobbes cited the same text. Bellarmine (2012, 10) quoted Rom. 13 to support the political authority of magistrates, while Hobbes appealed to the same text in *Philosophical Rudiments concerning Government and Society* to 'prove', concerning 'the right of princes', that 'there is an absolute and simple obedience due to them from their subjects' (1841: II, 146).

to life and property and external affairs on earth, for God cannot and will not permit anyone but himself to rule over the soul' (1962, 105). If secular authorities interfered in the religious beliefs of their subjects, therefore, they would be 'consummate fools' by attempting to exercise a power that they could not possibly possess. Luther concluded, therefore, that Christians should recognize the limits of civil authority:

> If your prince or temporal ruler commands you to side with the pope, to believe thus and so, or to get rid of certain books, you should say, 'it is not fitting that Lucifer should sit at the side of God…you are a tyrant and overreach yourself, commanding where you have neither the right or the authority'. (1962, 111–12)

Within their limited jurisdiction, however, Luther accepted that subjects were obliged to obey secular authorities unconditionally, even when princes abuse their power:

> You must know that since the beginning of the world a wise prince is a mighty rare bird, and an upright prince even rarer. They are generally the biggest fools or the worst scoundrels on earth; therefore, one must constantly expect the worst from them and look for little good, especially in divine matters which concern the salvation of souls. They are God's executioners and hangmen; his divine wrath uses them to punish the wicked and to maintain outward peace. (1962, 113)

Although Luther argued on scriptural grounds that it is never permissible for Christians to oppose the civil powers, his theory of two kingdoms also implied that a prince had no authority to command a Christian to act against their religious faith. 'What if a prince is in the wrong? Are his people bound to follow him then too? Answer: No, for it is no one's duty to do wrong; we must obey God (who desires the right) rather than men' (1962, 125). Thus, without endorsing a right of individuals to revolt against tyrants, Luther advised his followers to submit to civil authority in all matters except those of conscience. If, however, civil powers exceed their authority and attempt to force their subjects to accept false moral or religious beliefs, the subjects should refuse to obey and should accept any consequent punishment as if God approved it. This still amounted only to a justification of passive disobedience, rather than active resistance, in response to attempts by civil authorities to enforce belief in or practice of 'false' religion.

Luther subsequently amended his theory of passive obedience, after 1530, in response to Charles V's attempt to suppress the Lutheran church and to force its members to return to unity with Rome (Skinner 1978, 194–206). This involved two significant modifications of the political theory on which Luther had previously relied. One was to extend the range of civil rulers to whom St Paul's phrase 'the powers that be' applies; the other was to reduce the scope of the jurisdiction that can be justly exercised by any civil power.

If the biblical phrase, 'the powers that be', were applied to all rulers rather than exclusively to the highest authority in a given region (such as the king or emperor), then even inferior civil authorities could exercise their limited jurisdiction in the name of

God and would be entitled to resist a superior authority that acted tyrannically or in a notoriously unjust manner. The justification for this constitutional modification appeared in the *Confession and Apology of the Pastors and other Ministers of the Church at Magdeburg* (Amsdorf, 1550). The argument was summarized in a syllogism.

> Whenever a superior magistrate oppresses by force, in his subjects, either the natural law itself or the law of God, or the true religion and worship of God, an inferior magistrate is bound by God's command to resist him. The persecution that we already experience from our superiors is a real case of oppressing our true religion and the true worship of God, etc. Therefore, our magistrates are bound by God's command to resist this oppression. (1550: A, 1b)

The second modification of the original Lutheran theory was to draw a distinction between an *office* to which subjects owe obedience and the private *individual* who exercises that office. Gregory Brück had argued in *Is it Lawful to Resist a Judge who acts Unjustly* (1530), that 'to obey commands or edicts of the emperor that are contrary to [God's] word would be an irreparable harm' and that one ought to obey God and the truth of the gospel rather than man in matters of faith (1530, 65). 'Besides, the emperor has no jurisdiction in matters of faith' (ibid.). Brück concluded that, since it is lawful to resist a judge who has jurisdiction but acts unjustly, a fortiori is it lawful to resist someone who has no relevant jurisdiction in a given matter (1530, 66)—such as the emperor in matters of faith.[5] Once Lutherans had reduced tyrannical or unjust magistrates from the status of office-holders to private persons, they were able to appeal to a traditional principle that it is justifiable to resist with force those who threaten one's life. The Magdeburg Confession subsequently argued in similar terms: magistrates are ordained by God with a specific purpose, namely, to 'honour good works and to be a terror to evil (Rom. 13). Therefore, when a magistrate begins to terrorize good work and to honour evil, by doing so they are no longer an ordination of God but an ordination of the devil' (1550: F, 3). In that case, they automatically lose the jurisdiction that St Paul's text confirmed and are reduced to the status of a private citizen. To the extent that they threaten atrocious or notorious injuries to others, therefore, they may be resisted by force—although this resistance should still be decided and implemented by inferior magistrates rather than by private subjects.

Calvin's biblical interpretation of the limits of secular jurisdiction, in the final chapter of Book IV of the *Institutes*, provided a similar if somewhat ambiguous statement of the same theory as Luther. Calvin appealed, as Luther had done, to Romans 13 and other biblical texts to support his claim that magistrates are 'vicars of God' (1960, 1491) and that we 'must regard all of them as ordained of God' (1960, 1492). Accordingly, 'the magistrate cannot be resisted without God being resisted at the same time' (1960, 1511). Calvin endorsed Luther's opinion that we are obliged to obey equally both just and unjust magistrates.

[5] In 1530, Melanchthon was still defending the distinction between not obeying an unjust magistrate and resisting him by force; while the former was permissible, the latter never was. Melanchthon rejected the principle that 'it is permissible to repel force with force' as incompatible with divine law (Scheible 1969, 57).

We are not only subject to the authority of princes who perform their office towards us uprightly and faithfully as they ought, but also to the authority of all who, by whatever means, have got control of affairs, even though they perform not a whit of the princes' office… [the Lord] declares that they who rule unjustly and incompetently have been raised up by him to punish the wickedness of the people; that all equally have been endowed with that holy majesty with which he has invested lawful power. (1960, 1512)

However, Calvin rejected the suggestion that our obedience to princes may require a breach of God's law: 'we are always to make this exception… that such obedience is never to lead us away from obedience to him, to whose will the desire of all kings ought to be subject' (1960, 1520).

He developed the thesis about the primacy of divine law by distinguishing explicitly between the duties of 'private individuals' to submit to princes, and the duties of princes or magistrates who—in exceptional circumstances—may be obliged to defend 'the people's freedom' against oppression by other princes.

If there are now any magistrates of the people, appointed to restrain the willfulness of kings (as in ancient times the ephors were set against the Spartan kings… and perhaps, as things now are, such power as the three estates exercise in every realm when they hold their chief assemblies), I am so far from forbidding them to withstand, in accordance with their duty, the fierce licentiousness of kings, that, if they wink at kings who violently fall upon and assault the lowly common folk I declare that their dissimulation involves nefarious perfidy… (1960, 1519)

Thus, without endorsing a theory of popular revolution against unjust rulers, Calvin left room for other inferior magistrates—those who represent the interests of their subjects—to rebel against an abuse of political power. This became explicit in his commentary on the book of Daniel, where he argued that subjects should not obey rulers who exceed their authority by commanding subjects to act against God's commands:

For earthly princes abdicate their power when they rise up against God—worse, they are unworthy to be accounted in the number of men. We ought rather to spit in their faces than obey them when they are so shameless as to want even to despoil God of his right and as it were occupy his throne, as if they could drag him out of heaven. (1993, 266)

Calvin's *Homilies on the first Book of Samuel* repeats the same conclusion in less extreme language. There are some legitimate remedies against tyranny, since there are other magistrates or orders to whom the care of a republic is entrusted. They may restrain a prince in exercising his office and even 'coerce him' (1885: col. 552). This theory of provisional submission to civil powers by private individuals, when combined with the exceptions for those who corresponded to 'ephors' in Sparta, provided the seeds of the constitutional theory of resistance that found its fullest expression in France among the political theorists of the Reformed Church in the sixteenth century.

7.3 François Hotman and Théodore de Bèze

Hotman and Bèze were among the first French Huguenot critics of absolute sovereignty. They appear to have exchanged ideas as they were drafting their complementary critiques more or less simultaneously, which they then submitted to the Geneva Council in 1573. While Hotman's *Francogallia* (1573) proposed a constitutional political theory under the veil of a scholarly review of ancient political structures in France, Bèze's *The Right of Magistrates* was unequivocally a direct challenge to any theory of unlimited sovereignty. Not surprisingly, Hotman's book was approved and appeared in Latin in 1573, while Bèze's book (also written in Latin) was rejected by the censors in Geneva (Bèze 1970, 76). Nonetheless, it appeared anonymously in a French translation in 1574 as *Du Droit des Magistrats*. Together, they provide a clear statement of the theoretical response of Huguenots to the St Bartholomew massacre and a moderate defence of constitutionalism in France.

One of Hotman's fundamental assumptions was that there was a French nation or people (*gens*) whose members shared 'the same language, customs, and laws' (1972, 149) and whose political authority was vested in a 'common council of the entire nation' (1972, 149). In contrast with Luther and Calvin, Hotman's political theory did not appeal to biblical texts but to custom, since 'the practices and customs of the nation . . . have acquired the force of written law' (1972, 275). Accordingly, Hotman set out to identify customs that, for centuries, had defined the source and limits of political authority in France and, by implication, determined the constitutional limits within which the king and the three estates were required to act in the sixteenth century.

Hotman's basic claim was that, by ancient custom, the French people or nation (as represented by its public council) conferred a limited jurisdiction on its kings. 'The kings of Francogallia were constituted by the authoritative decision and desire of the people, that is, of the orders . . . [i.e.] the estates, rather than by any hereditary right' (1972, 231–3). The people had the power, not only to appoint kings but also (by implication) to depose them (1972, 235, 287). In Francogallia, kings were 'created by fixed laws and were not constituted as tyrants with unbridled, free and unlimited authority' (1972, 231–3, 237). This provided an opportunity for Hotman to explain how even a properly constituted king could exercise his powers tyrannically, 'when all matters are judged by the comfort and will of him who governs rather than by the ease and desire of the commonwealth and the subjects' (1972, 291).

Hotman extrapolated his conclusion from Francogallia to all nations, and quoted with approval from Cicero's dictum that 'the welfare of the people is the supreme law':

> Since . . . there has always been this common law among all peoples and nations [*gentium ac nationum*] who practise regal rather than tyrannical government, namely that 'THE WELFARE OF THE PEOPLE WAS THE SUPREME LAW', it is obvious not only that this celebrated liberty of holding a common council is a part of the law of nations [*gentium*] but also that kings who oppress that sacred liberty with their evil arts, as if they were violators of this international law

and beings set apart from human society, should not be regarded as kings but rather as tyrants. (1972, 317)[6]

The limits of a king's powers were confirmed by the distinction between a king and his kingdom; while the king is 'a unique and individual person and . . . as it were, the head of the commonwealth', the kingdom is the 'totality of the citizens [*civium*] and subjects and is, so to speak, the body of the commonwealth' (1972, 399). The people are 'not found and procured for the sake of the king, but rather the king for the people' (1972, 399–401). The king, therefore, was traditionally constrained by fundamental laws, the first of which was to 'preserve the authority of the public council'. Nor could the king alienate any part of the royal domain. In sum, a king 'cannot show obedience more pleasing to God' than by 'observing those laws of the kingdom' (1972, 475).

In contrast with the historical review presented by Hotman, Bèze introduced his treatise explicitly as one that was 'very necessary for these times, to alert both magistrates and subjects to their duties' (title). While appealing to scriptural sources for support, he also invoked the authority of natural law and human law. Bèze argued that it was self-evident, and confirmed by the 'history of all nations' (*toutes les nations*), that 'peoples were not created for magistrates; on the contrary, magistrates were created for peoples' (Bèze 1574, 9–10).[7] He distinguished between (i) those who had been appointed legitimately and subsequently become tyrants by abusing their office, and (ii) tyrants who acquire their office by unjust conquest. In the latter case, a magistrate has no more authority than any other private person and 'it is a well-known rule of all law, divine and human' (*tout droit divin et humain*: 1970, 12) that even private individuals must use all their strength to defend their country from attack, 'especially when the question of religion is combined with that of liberty' (1969, 105). The justification for this principle, which was implied in his subsequent qualification about those who seize dominion without title, was that the legitimacy of rulers depends on the consent of their subjects. 'He who began as a tyrant may become a legitimate . . . magistrate through that free and lawful consent by which legitimate rulers are created' (1969, 107). Without such free and lawful consent, however, a tyrant would be a mere private citizen and 'may rightfully be stopped by force of arms, and by anyone, no matter what his station' (1969, 109) because the involuntary subjects of a tyrant have no obligation at all to obey him (1970, 17).

The situation is very different if a magistrate acquires office legitimately and subsequently becomes a tyrant. Bèze repeated the familiar Calvinist principle that a private individual is never justified in opposing the magistrate, unless specially called to do so

[6] The reference to Cicero's *De legibus* (III, iii, 8) was inserted at six places in the second edition of the text (1576).

[7] For the most part I quote the English translation of Bèze from Franklin (1969); in a few cases, however, where Franklin's abridgement omits a citation, I offer my own translation and refer to the corresponding page in the French text (1970).

by God.[8] However, he also appealed to the reformers' principle that even inferior magistrates are 'ordained of God' and, since they are officers of a kingdom in their own right, they are obliged to resist flagrant tyranny. In France, he argued, the Estates exercise the office of inferior magistrates.

> Is it not then reasonable, by all law divine and human, that . . . these lesser magistrates . . . are obliged, if reduced to that necessity, and by force of arms where that is possible, to offer resistance to flagrant tyranny, and to safeguard those within their care, until such time as the Estates, or whoever holds the legislative power of the kingdom or the empire, may by common deliberation make further and appropriate provision for the public welfare. (1969, 112)

Although Bèze's argument invoked historical examples and was applied specifically to France, he was anxious to expand the scope of his conclusion and provide arguments for a more general thesis 'from reason'.

The argument from reason assumed that when a people enters into a contract with its rulers, both parties are bound by that contract only to the extent that it is consistent with natural law.

> I say that equity and natural law [*droit de nature*] themselves, on which the maintenance of all human society depends, permit no doubt about the following two points. First, in all agreements that are contracted only by the consent of the parties, those who incur an obligation may break it when there is reason to do so; consequently, those who have the power to create a king also have the power to depose him. Second, if there is any just occasion to dissolve a contract or agreement . . . it is when the essential conditions—by which and in respect of which the obligation had been specifically contracted—have been notoriously violated. (1969, 124)

Bèze rejected the counter-argument that some nations had historically accepted tyrannical rule. He claimed instead that, if a nation's submission were realized by force or intimidation, or through ignorance or fraud, it would be invalid; and even if a people agreed freely to observe some condition that was 'manifestly irreligious and contrary to the law of nature [*le droit naturel*]' the obligation would be invalid (1969, 124). This condition was a 'universal rule of justice, based on maxims and common principles that have remained in human nature no matter how corrupted it has become' (1970, 45) and is so certain that anything that is inconsistent with it must be invalid. Bèze did not clarify what he meant by this natural law, to which 'all human beings are bound because they are born as human' (1969, 127) and to which the king is also bound (or is not human). I return below (7.6) to what 'natural law' may have meant in this context.

Finally, Bèze appealed to reasonable Roman Catholics to accept the analogy between the authority of the Estates and that of a general church council, and to apply to kings the same rationale that supported conciliarism in the fifteenth century. Since a general

[8] In his commentary on Romans 13, Bèze qualifies the obedience that subjects owe to magistrates. A ruler must accept the law of God and must have been established according to human and divine law. If someone employs remedies that are necessary and holy against manifest tyranny, which are ratified by the public authority of the relevant civil state, they do not thereby oppose the power of a magistrate (1598, ch. XIII, 87, 88).

council or synod has the power to appoint a pope, he argued, it must also have the power to remove him from office in specified circumstances, e.g. for heresy—or, as happened at the Council of Constance (1414–18), when there were three contenders simultaneously claiming to be the legitimate pope. Bèze concluded that either kings have more authority than popes or 'peoples have as much power over kings who have become tyrants as a Council over a heretic pope' (1969, 129).[9]

Although Bèze relies on the authority of the Bible to support his political theory, the insecurity of that foundation is apparent in his response to the tract on religious toleration that Sebastian Castellio had published in 1554 (Castellio 1554, 1935). When Calvin denounced Michael Servetus as a heretic for denying the efficacy of infant baptism and the doctrine of the Trinity, Servetus was burned at the stake in October 1553. Castellio argued, in *Concerning Heretics*, that this was inconsistent with principles of religious toleration that had been developed by a range of authors, including Erasmus and Luther. Bèze, however, adopted the opposite view and defended Calvin's action in his *Treatise on the Authority of Magistrates to Punish Heretics* (1554). There he argued that, despite the fact that some princes abuse their powers, Christians deprive themselves of a 'wonderfully useful and even necessary help' which was 'provided by God' if they fail to use 'Christian magistrates' to defend themselves against the 'external violence of infidels and heretics' (1560, 208).[10]

This incident highlights the fragility of political theories that rely ultimately on disputed readings of the Bible. The majority of the French population, whom Calvin and Bèze classified as heretics, could have implemented Bèze's biblical politics with equal severity against Calvinists[11]—a conclusion that was subsequently drawn by Robert Bellarmine on behalf of civil powers in a Catholic jurisdiction. Bellarmine cited Calvin's condemnation of Servetus to support the theory that civil rulers have authority to punish heretics (i.e., Calvinists) with the death penalty, and he even appealed to Bèze as authority for his view: 'Theodore Beza teaches it [i.e., Calvin's theory of political authority] at even greater length in his book *De hereticis a magistatu puniendis*' (2012, 102). Bèze's appeal to natural law, just like that of Bellarmine, may reduce on further examination to an indirect appeal to God's commands. I return to that issue below (7.6), since Hotman, Bèze, Bodin, and the *Vindiciae* all invoke an unspecified natural law in support of incompatible conclusions.

The relationship between a people or nation and a ruler was also central to the constitutional theory defended by Hotman and Bèze, although the logic of this argument remained both implicit and unclear. Bèze argued that 'peoples, whether they

[9] I have amended the translation to reflect more accurately the French text, which refers to kings who became tyrants after their legitimate appointment.

[10] Bèze has given the same argument in the fifth reply to arguments by which 'adversaries claim to show that the punishment of heretics does not belong to earthly magistrates'. He described this power as 'very useful and even very necessary whenever it is necessary and pleasing to God' (1560, 178).

[11] It is estimated that Huguenots constituted about ten per cent of the population, although their members were often concentrated in cities and towns where they were in the majority.

have chosen to be governed by a single prince or by a number of elected notables, are older than these rulers' and, therefore, 'are not created for their rulers, but rulers [are created] rather for their peoples' (1969, 104). That could mean that the priority of a people over a magistrate is chronological, as if a people exists prior to appointing a magistrate but not vice versa, and the chronological interpretation appears to fit some expressions of the thesis, such as: 'the people was there before [*devant*] any Magistrate, and the people is not for the Magistrate, but the Magistrate for the people' (1970, 23).

Bèze used the French terms '*peuple*' and '*nation*' repeatedly, but never to refer simply to many individuals who share a geographical location. Bèze's use of these terms suffers from the lack of definition that has been identified in recent analyses of nationalism. The concept of a nation implies a distinct cultural/linguistic community, with shared values and customs (and often a common religious tradition), which extends over a number of generations and thinks of its members as being unified by its common features.[12] Thus, if the 'people before the ruler' argument is understood chronologically, Bèze would have to assume a transitional period in the history of any commonwealth, in which many individuals already think of themselves as a distinct nation but have not yet decided on the type of rule they wish to establish. In that case, the authority of any magistrate who is appointed would depend on the 'free and lawful consent' of the subjects. That suggests that the principle on which this argument depends is not chronology, but the more plausible conceptual distinction between a nation and a state. In other words, Bèze argued that it is logically possible to have a nation without having a king and, therefore—assuming that some form of rule is established in every nation—that being ruled is not logically dependent on having a particular kind of ruler.

Once a people's consent is introduced as the key to understanding the source and limits of a magistrate's jurisdiction, Bèze was able to offer two arguments against tyranny. One was that any contract between a people and a magistrate is subject to the condition that no people can validly agree to be ruled in a manner that is irreligious and contrary to the law of nature. To do so would involve being bound by God's law (towards rulers) to break God's law (as revealed in the Scriptures or in natural law). This confirms that one of the fundamental principles on which this theory depends is a biblically based understanding of the duties of human beings towards God. As Bèze observes in the opening paragraph of his tract, 'the only will that is a perpetual and immutable criterion of justice is the will of the one God and none other' (1969, 101). Since 'it is beyond all reasonable doubt that only God's will is identical with reason' (1969, 117), individual subjects and their magistrates are subject to God's will. Therefore, if a magistrate commands subjects to act against God's commands or forbids

[12] See for example Anderson (1991), Armstrong (1982), Breuilly (1993), Brubaker (1996), Gellner, (1983), Renan (1882), and Smith (1991). That the self-perception of a community is an essential feature of national identity is due especially to Miller (1995).

them to comply with divine law, the subjects have a duty to refuse. But it was also apparent in the theology of Luther and Calvin that a duty not to obey a monarch did not imply a right to resist. To reach that conclusion, Bèze needed to show that consent was the only valid basis for a lawful governing authority.

His other argument was that he could not conceive of any nation freely giving unlimited power to a magistrate, because to do so would be manifestly unreasonable. He challenged defenders of absolute sovereignty to prove that:

> there ever was a nation which, knowingly and without fear or force, was so unmindful of its interests as to submit itself to the will of some sovereign without the express or implicit condition that they would be governed justly and equitably. (1970, 45)

This principle about the consent of the governed was to prove more successful; it was borrowed from natural law theory and re-appeared in *Vindiciae contra Tyrannos*, both of which are discussed further below (7.5, 7.6).

7.4 Jean Bodin: Absolute Sovereignty

When Bodin was teaching law at the University of Toulouse, he outlined plans to study and compare a wide sample of legal and constitutional arrangements, including Roman law and commentaries on its interpretation. He published an early version of this project in *Method for the Easy Comprehension of History* (1566), in which he defined sovereignty in terms of five characteristic functions: 'creating the most important magistrates and defining the office of each … proclaiming and annulling law … declaring war and peace … receiving final appeal from all magistrates … the power of life and death' (1945, 172–3). In 1566, however, Bodin stopped far short of endorsing the radical implications of that definition that appeared ten years later in his most famous work, *Six Books concerning a Commonwealth*.

In *Method*, Bodin reported favourably that, in Roman law, 'since it is the peculiar responsibility of the people alone to approve legislation' the commands of magistrates were merely draft laws until they were 'approved by the common consent of everyone' (1945, 177, 302). He distinguished tyrants and genuine monarchs by their respect for the laws of their commonwealths: 'I call [a state] a monarchy, when the sovereignty is vested in one man, who commands either lawfully or unlawfully. The latter is called tyrant; the former, king' (1945, 201). Finally, he discussed different ways in which lawful princes might function, in one of which they 'bind themselves to govern the state in accordance with the laws of the country and the public good.' Having sworn an oath of office, therefore, princes 'cannot destroy the laws peculiar to the entire kingdom or alter any of the customs of the cities or ancient ways without the consent of the three estates' (1945, 204).

These explicit acknowledgements of the limited power of magistrates were modified significantly in response to the publication of the monarchomachs' tracts and to the political crisis in France in the 1570s. In the Preface to *Six Books concerning a*

Commonwealth (1576), Bodin identified the followers of Machiavelli as one of the main threats to the stability of the ship of state. But there were others who were:

> no less dangerous and perhaps even more so, who under the appearance of being exempt from responsibility and popular liberty, cause subjects to rebel against their natural princes and thereby open the door to a licentious anarchy, which is worse than the greatest tyranny ever. (1576, Preface, iv).

It is clear that Bodin's fundamental change in political philosophy was prompted by Calvinist authors 'who published books' and claimed that subjects may legitimately 'take up arms against a tyrannical prince and put him to death by any means whatever' (1992, 118).[13]

Bodin adopted from Bèze the description of a 'tyrant without title', as someone who seizes the function of a sovereign prince 'without election, or right of succession, or lot, or a just war, or a special calling from God' (1992, 110). He conceded that subjects may kill such tyrants without title. But, he argued, if one were to apply the term 'tyrant' to a legitimately appointed monarch who is deemed to rule unjustly, the implications would be catastrophic for any state:

> How many tyrants there would be if it were lawful to kill them! He who taxes too heavily would be a tyrant, as the vulgar understand it; he who gives commands that the people do not like would be a tyrant, as Aristotle defined a tyrant in the *Politics*; he who maintains guards for his security would be a tyrant; he who punishes conspirators against his rule would be a tyrant. How then should good princes be secure in their lives? (1992, 120)

Despite having described a monarch who acts unjustly as a tyrant in *Method*, Bodin was unequivocal ten years later in condemning those who rebel against their king: 'A subject is guilty of treason in the first degree not only for having killed a sovereign prince, but also for attempting it, advising it, wishing it, or even thinking it' (1992, 115). One reason offered was the same as that given by Luther, whom Bodin cites in support of his revised view (1576, 259): 'contempt for one's sovereign is contempt towards God, of whom he is the earthly image', because princes are established as 'lieutenants for commanding other men' (1992, 46). Bodin also repeats the legitimate options offered by Luther to subjects who are commanded by a prince to breach the law of God or nature: they may refuse to obey, flee the territory, or even suffer death if necessary (1576, 259). But they may never rebel.

In addition to this traditional theory—which Bodin acknowledged as borrowed from theologians—the experience of frequent civil and religious wars was enough to convince the author of *Commonwealth* that the sovereignty of the state is a fundamental political value that must be protected, even when it is abused by a monarch. He defines sovereignty as 'the absolute and perpetual power of a commonwealth', which is 'not limited either in power, or in function, or in length of time' (1992, 1, 3). He does

[13] Bodin rejects 'Calvin's remark' about the ephors in Sparta because, in his opinion, Calvin merely speculated about a possible analogy between the ephors and the three estates in France (1992, 118–19).

not claim, as might be assumed, that those who exercise sovereignty are not subject to any law at all, since 'every earthly prince is subject to the laws of God and of nature and to various human laws that are common to all peoples' (1992, 10).

> As for divine and natural laws [*loix divines et naturelles*], every prince on earth is subject to them, and it is not in their power to contravene them unless they wish to be guilty of treason against God, and to war against Him beneath whose grandeur all the monarchs of this world should bear the yoke and bow the head in abject fear and reverence. The absolute power of princes and of other sovereign lordships, therefore, does not in any way extend to the laws of God and of nature. (1992, 13)[14]

For example, a prince does not have a right to 'take another's property without just and reasonable cause—as by purchase, exchange, lawful confiscation, or in negotiating terms of peace with an enemy' (1992, 39). Therefore, 'there is no prince in all the world who has the power to levy taxes on the people at his pleasure any more than he has the power to take another's goods' (1992, 21). Bodin subsequently appealed to both of these points, in the preface to the second edition of *Commonwealth* (1577 or 1578), to answer the objection that he had conceded 'an unlimited' power to kings. He reminded readers defensively that he had demonstrated courage when he wrote that even kings cannot 'levy taxes without the fullest consent of the citizens', and that 'princes are more stringently bound by divine and natural law than their subjects' (1962, A71).

Although Bodin agreed with Hotman and Bèze about a king's subjection to divine law, he disagreed fundamentally with the principle that citizens had a right to rebel against their king or to depose him. He offered a rationale for this in the preface to the second edition of *Commonwealth*:

> When I perceived on every side that subjects were arming themselves against their princes; that books were being brought out openly, like firebrands to set commonweals ablaze, in which we are taught that the princes sent by providence to the human race must be thrust out of their kingdoms under a pretense of tyranny, and that kings must be chosen not by their lineage, but by the will of the people, and finally that these doctrines were weakening the foundations not of this realm only but of all states; then I denied that it was the function of a good man . . . to offer violence to his prince for any reason, however great a tyrant he may be; and contended that it was necessary to leave this punishment to God, and to other princes. (1962, A71–2)

To support that conclusion, Bodin reflected on the sovereignty in virtue of which monarchs rule their kingdoms.

In doing so, the methodological challenge, as it was for his opponents, was to provide an argument that did not beg the question. Bodin seems to have been aware of the task involved. He had learned 'from the philosophers that common saying: that there is no science of individual things' (1962, A73) and he realized, therefore, that the legal or

[14] Bodin often repeats that a sovereign prince is subject to 'the law of God and of nature, to which he is more strictly bound than any of his subjects' (1992, 31), and 'does not have the power to overstep the bounds of natural law, which has been established by God, of whom he is the image' (1992, 39).

constitutional science in which he was engaged could not be based exclusively on historical facts about France. Nor could it be based merely on the opinion of some author or their assumed authority, but only on whether an 'opinion conforms to reason' (1962, A 73). Although he does not say so, his aim was apparently to conduct a sufficiently wide survey of well-functioning political systems to support an inductive conclusion about what is required to cultivate or maintain a peaceful state.

Bodin could assume without fear of contradiction at that time that the power exercised by a king came ultimately from God, although that left open the question about how such an assumed divine delegation occurs. Does God intervene in human history to designate legitimate kings, does the Bible reveal from God some unique selection procedure for appointing monarchs, or does God 'ordain' those who are chosen by the people according to some approved or customary system? If God adopted the third option, sovereignty could inhere in a people or nation—as the monarchomachs insisted—and its members could then designate a ruler who is contracted by the people to rule on their behalf. In that case, the people would also decide the method by which monarchs are appointed. For example, they could elect the ruler, or a people might accept lineage to select those who are contracted to rule. To exclude those options, in which the consent of a people is necessary for legitimate political authority, Bodin focused on the concept of sovereignty and argued that, once it is defined correctly, sovereignty cannot be delegated by a people, nor can it be shared between different functions in a state.[15]

In *Commonwealth*, Bodin revisits the marks of sovereignty that he has outlined in *Method* and adds others, such as the right to impose 'taxes and aids on subjects', to determine the 'name, value, and measure of the coinage', and to require subjects to swear loyalty to the monarch (1992, 58–9). These made no fundamental difference to how he understood sovereignty, however, because the 'first prerogative of a sovereign prince is to give law to all in general and each in particular . . . without the consent of any other' (1992, 56). 'There is only this one prerogative of sovereignty (i.e., of making and repealing laws), inasmuch as all the other rights are comprehended in it' (1992, 58). Bodin's thesis was that if a monarch exercises sovereignty, then although he is subject to divine or natural law, he cannot be subject to laws that he or his predecessors originated and his power to legislate cannot derive from the people.

Once sovereignty is defined in terms of authority to legislate, Bodin replied to the reformers' theory that 'it is essential . . . not to confuse a law and a contract' (1992, 15). Although kings are bound by their contracts, just like anyone else, their legislative power does not arise from a contract with their subjects. The reasoning here seems to have been that legislating consists essentially or by definition in giving commands: 'the very word "law" in Latin implies the command of him who has the sovereignty' (1992, 11). 'Since the law is nothing but the command of a sovereign making use of his power' (1992, 38), a prince cannot be subject to human laws because that would imply being

[15] Bodin's argument is examined in Franklin (1973, 2006).

subject to himself. For the same reason, his power of commanding presupposes superiority over those whom he commands and therefore cannot arise from a covenant or contract with them. 'Who will be the subjects and who will obey if they also have the power to make law? And who will be able to make a law if he is himself constrained to receive it from those to whom he gives it?' (1992, 92).

Having defined laws as the commands of a sovereign, Bodin then argued that sovereignty is indivisible. He considered the possibility that the privileges or rights of sovereignty might be shared—for example, in a state 'wherein the people create the officers . . . the nobility makes the laws . . . and there exists a royal magistrate above all others to whom the people as a whole and each person in particular renders fealty and homage' (1992, 103–4). His response was that 'no such state [*république*] has ever existed' (1992, 104). But, in addition, 'none can be made or even imagined, because the privileges of sovereignty are indivisible' (ibid.). He had written earlier in the same chapter that 'to combine monarchy with democracy and with aristocracy is impossible and contradictory, and cannot even be imagined' (1992, 92). The final claim here was more plausible than the others. France had experienced decades of political unrest and civil war. Following the death of Henry II in 1558, his son Francis II became king at the age of fifteen; when he died one year later, his brother assumed the throne as Charles IX at the age of ten. The lengthy regency of Catherine de' Medici, which began in 1558 and continued during the minority of two kings, was characterized by unrelenting civil wars between claimants to the crown and, although Bodin could not have anticipated this, Charles IX's two successors, Henry III and Henry IV, were both assassinated. It was not entirely implausible, in those chaotic political circumstances, for Bodin to claim that he could not *imagine* how the sovereignty of a stable, law-abiding state could be shared among different offices.

But he also seems to have made a stronger claim, which was philosophically indefensible, namely that a shared sovereignty is a contradiction in terms. When the definition of a term logically implies the solution of a disputed question, it is always open to those who hold alternative views to change the terms in which the discussion is conducted. Therefore, whether sovereignty may or may not be shared could not possibly have been resolved by definition. Besides, Bodin's definition of sovereignty failed to fit even the arrangements that were then in place in the Holy Roman Empire, and failed to acknowledge the limitations on royal authority that had been canvassed by many authors, including the famous constraints or bridles (*freins*) that were discussed by Claude Seyssel* in *The Monarchy of France*.

Seyssel argued in *Monarchy* that the 'authority and power of the King is regulated and bridled in France by Three Bridles' (1981, 49), which he named as religion, justice, and polity (*la police*). The constraint of religion required the king to live 'in accordance with the Christian religion and law [at least in appearance]' (1981, 52–3) and, if he deviated from that obligation, any prelate or any other religious person was entitled to remonstrate with him. The second bridle was justice; that was especially linked to the independent function of French *parlements* 'which were instituted chiefly to bridle the

absolute power that the kings might want to use' (1981, 54). Seyssel underlined the fact that this bridle was more authoritative because the officers deputed to administer justice were permanent and therefore not subject to dismissal by the king. Thirdly, the king was constrained by polity, which included 'the many ordinances made by the kings in France . . . which tend to the conservation of the realm in general and in detail' (1981, 56). Among the limitations that resulted from justice, kings could not alienate their domain and royal patrimony, except in case of necessity. Since Seyssel was a Catholic archbishop who had extensive experience in royal offices in France, the limits on the power of French kings against which Bodin argued were not exclusively Calvinist nor uniquely motivated by Reformation theology.

Despite the enormous size of the book and the multitude of authorities, ancient and contemporary, to which it appealed, Bodin's *Commonwealth* failed to convince the very audience to which it had been addressed. Even for those who accepted God as the ultimate source of sovereignty and who agreed that subjects normally have a moral obligation to obey their rulers, as all Bodin's critics did, the method by which God may effectively delegate authority to earthly rulers remained open to further analysis and the legitimate response of subjects to an abuse of political authority—especially in respect of freedom of religious belief and practice—continued to evoke trenchant discussion. Perhaps one should not understand Bodin's political theory as if it were derived from first principles, whether biblical or philosophical, or from a definition of sovereignty, although those were the terms in which it was presented. It may have been a pragmatic solution to a specific political crisis in sixteenth-century France, an exercise of practical reason that was compatible with natural law without being uniquely implied by it.

7.5 The *Vindiciae contra Tyrannos*

Three years after Bodin's defence of absolute sovereignty appeared, the Calvinist argument in favour of constitutionalism was restated under the title: *A Defence against Tyrants, or the legitimate power of princes over a people and of a people over a prince*. The author(s) concealed their identity under a pseudonym on the title page, and misleadingly indicated that the book was published in Edinburgh, when it was actually printed in Basel.[16] *Vindiciae* reworked all the arguments already found in Hotman and Bèze, and appealed to the same authorities as its predecessors, namely, the Bible and natural law. However, it was also more explicit about the extent to which a people, a ruler, and God enter a reciprocally binding covenant, and about the conditions under which a

[16] The authorship of this book remains unresolved. Philippe du Plessis Mornay (1549–1623) has been traditionally identified as its author, although Hubert Languet (1518–81) may also have contributed to the final work (Anonymous 1994, lv–lxxvi). To avoid unresolved disputes about its authorship, I refer to this text throughout as *Vindiciae* (1579).

people would surrender their natural freedom in return for the justice and peace that are allegedly guaranteed by a lawful king.

The fundamental principle of *Vindiciae*, which was characteristic of all the Reformers' political philosophy, was that kings should be obeyed only to the extent that their commands are consistent with God's law (1994, 14). *Vindiciae* converted what might otherwise appear as merely a moral requirement on individual subjects—that they limit obedience to those commands of a magistrate that are consistent with divine law—into a three-way covenant or pact (*foedus sive pactum*) that resembled God's covenant with the people of Israel. Just as the Jewish people collectively constituted the people of God, so in modern times 'the whole Christian people of any kingdom' (1994, 35) constituted a people or nation. The assumed unity of a people was underlined by analogies between the agency of an individual and the agency of a nation, and between the rights of an individual and those of a people. For example, individuals enjoy a 'natural liberty' that they prize so much that they are entitled to defend it (1994, 92, 149), and in civil law it is irrelevant to the injustice of a theft or robbery whether one is dispossessed of one's land or possessions by a foreigner or a local king. The uncontested injustice perpetrated by robbers and other criminals against individuals thus provided a model for the injustices perpetrated by tyrants against a nation (1994, 140, 188).

A people, therefore, may act in unison and its members are jointly responsible with the king for observing their covenant with God. A people's agreement with a king cannot be unconditional, however; a nation owes the sovereign allegiance only on condition that he satisfies his contractual obligations.

> So there is no doubt that the people stipulated, and the king promised; for the parts of stipulator are considered to be stronger in law. The people asked, as a stipulation, whether the king would rule justly and according to the laws? He pledged that he would do so. Finally the people answered that it would obey faithfully so long as he commanded justly. Thus the king promised absolutely, and the people conditionally: if he were to fail to fulfil his part, the people could be considered to be absolved from all obligation by that very right. (1994, 130–1)

Vindiciae repeated the familiar claim that the people 'constitutes kings, confers kingdoms, and approves the election by its vote'; in the same context, however, it acknowledged that 'God institutes kings, gives kingdoms to them, and elects them' (1994, 68). These alternative accounts are reconciled by realizing that the people and the king jointly have entered a pact with God, and that this pact is implemented without further divine intervention when a people agree to be ruled by some individual. *Vindiciae* supported this interpretation of political power by other arguments that had been used previously by Bèze: (i) that a king is merely a human being, and therefore subject to God's law, and (ii) that 'no-one is born a king, no-one is a king in himself' (1994, 71). While a king cannot rule without a people, a people could arrange to be ruled without a king.

The political covenant between a people and its king involves the surrender by subjects of their natural liberty. 'They would not willingly have elected the command of

another, and renounced the law, as it were, of their own nature' (1994, 92) unless they were to gain some great advantage, the foremost of which is the guarantee of justice by the king. *Vindiciae* invokes the traditional language of rights to describe a people's natural liberty: 'no violence can prescribe liberty, however long the servitude' (1994, 90), and no plot by magistrates can detract from a people's right to freedom. Since natural liberty cannot be lost by prescription or by coercion, the only way in which a people could become subject to the command of another is by consent:

> For what could be more in conflict with nature than for a people to put itself in fetters and shackles; for it is to promise a prince that it would put its own jugular against the point of a knife… so there is a mutual obligation between a king and people which—whether civil or merely natural, whether tacit or expressed in words—cannot be abrogated in any way or violated by any right, or rescinded by force. (1994, 140)

Having explained the voluntary limitation of its natural rights by which a people agrees to be ruled, *Vindiciae* is even more explicit about the king's reciprocal obligations and the limited jurisdiction that he enjoys. Borrowing terms that were prominent in Roman and medieval rights theories, it denies that a king has either *dominium* or usufruct of his kingdom, since he is not allowed to donate or mortgage his kingdom. 'Kings are only administrators of the royal patrimony, not proprietors or usufructuaries' (1994, 127). The king's power is limited because, at his coronation and as a condition of his pact with his people, he pledges that 'he will guard the laws strictly':

> These are as follows: not to squander the public patrimony; not to impose or declare tolls, customs duties, or tributes at his own whim; not to declare war or make peace; and, finally, not to decree anything publicly without public counsel. (1994, 135)

Vindiciae applied the familiar distinction between two ways in which a king may be a tyrant: by seizing a kingdom by force or fraud (a tyrant without title), or by exercising a legitimate title in a way that is flagrantly at variance with his contract (a tyrant by conduct). In brief, a genuine king promotes the public interest, whereas a tyrant seeks his own. Of course, even if a king is a tyrant in either sense, it does not follow that a people may resist him by force because, as Bèze had also acknowledged, 'it may often happen that the cure [a civil war] that is applied may be worse than the disease itself' (1579, 192). In the case of tyrants who have no legitimate claim to a throne or magistracy, *Vindiciae* was unambiguous:

> Natural law [*ius Naturale*] teaches us to preserve and protect our life and liberty—without which life is scarcely life at all—against all force and injustice. Nature implants this in dogs against wolves, in bulls against lions, in doves against hawks… all the more so in man against man himself, if he has become a wolf to himself. (1994, 149)

The obligation to resist a tyrant who invades another country is also supported by the law of peoples (*ius gentium*), which distinguishes different nations and establishes boundaries between their jurisdictions. Thus a nation should treat an invading

magistrate as an individual would treat a burglar who enters a private home. Finally, the civil law of each country requires every subject to resist an invading tyrant who attacks the 'society to which he owes everything', an obligation that binds 'by nature, laws, and oath' (1994, 150). In summary, 'the laws of nature, of nations, and the civil law command us to take up arms against these tyrants [without title]' (1994, 150). *Vindiciae* had to concede, however, that many kingdoms originated through this kind of foreign conquest. Accordingly, its conclusion was modified so that, if a nation formally consents to a new monarch who had acquired his title by conquest, it is then 'equitable that the people should obey, and should calmly acquiesce in the will of God' (1994, 189) as if God had willed the transfer of allegiance. Thus the fundamental objection to tyrants who acquired their title unjustly was not the manner in which they acquired their office but the fact that they failed to win the subsequent consent of their subjects.

The legitimate response to the second kind of tyrant, a tyrant by conduct, was more complex. The concept of a reciprocal pact between a people and its king implies that the latter had promised to be a just prince and the people had promised to obey him on condition that he fulfilled his promise. Therefore, if a king fails to rule justly, 'the contract is void, and there is no obligation by that very right' (1994, 158). The obligation to resist then falls on the officers of the kingdom, on those inferior magistrates 'who have received authority from the people' (1994, 46) and to whom *Vindiciae* applies the title 'ephors' as Calvin had previously done (1994, 46, 80, 89, 131, 166). It was apparent in the religious wars of the sixteenth century, of course, that 'the people' was often incapable of acting collectively as a united body against a tyrant, and it was equally difficult for a whole nation to identify which monarchs were tyrants, especially if that question were decided by their failure to respect the 'true faith'.

Vindiciae considered the case in which a majority of inferior magistrates lapse into heresy—a description that the Huguenot minority in France would have applied to their Catholic fellow subjects—and concluded that each magistrate in a town or distinct political region is bound by the same obligations to uphold the fundamental covenant with God and, therefore, to resist if 'the king wanted to coerce that part [of the people] into impious rites or to forbid it true worship' (1994, 50). As a minimally defensive measure, *Vindiciae* recommended that a town should close its gates against a tyrant who threatens its freedom to worship in the true faith. This provided a rationale for La Rochelle's defence against the crown in the famous siege that occurred in 1627–8 (Créte 1987; Collins 2009, 36). But, even in that case, the issue was neither simple nor singular. Louis XIII did not forbid Huguenots in La Rochelle to worship as they wished; he demanded, rather, that they also permit Roman Catholic worship in their city, and insisted on the full political obedience of his Huguenot subjects. Since La Rochelle had sought support from an English expeditionary force, which landed at the nearby Ile de Ré under the command of the Duke of Buckingham, that added the dimension of invasion by a foreign power to what otherwise might have been seen as a defence of religious freedom.

Finally, in a rhetorical counter-argument against Bodin or defenders of the Catholic league, *Vindiciae* borrowed the analogy between the powers of a king and those of a pope, as Bèze had done earlier. He reminded readers that if a pope became heretical or if there was more than one claimant to the papacy, a general council of the church must have the jurisdiction to decide the pope's orthodoxy or to depose those who lack a proper title (1994, 47, 163). The power to appoint a pope or king is symmetrical with the power to depose one. If conciliarism had been adopted as a constitutionalist model in France, the monarchomachs claimed, disputes between claimants to the French throne could have been resolved peacefully by the people or its representative council rather than by force of arms.

While all the contributors to this debate assumed that the authority of a state had a divine origin, it is equally clear that they all appealed to natural law, without defining the term, in support of their disparate views. One needs to examine, therefore, if natural law provided an independent support for the constitutionalist theory, or if their theory of natural law reduced to another version of a biblically based divine law.

7.6 Natural Law

When French political theorists invoked natural law in the sixteenth century, their discussions reflected the ambiguity of the natural law tradition to which they appealed. *Vindiciae* referred to the natural tendency of dogs, bulls, and doves to defend themselves, although there is no sense in which the satisfaction of that tendency is morally obligatory. Lorenzo Valla expressed that objection clearly, in *The Elegance of the Latin Language*: 'it is ridiculous to apply the term "natural right" to what nature teaches all animals' (Valla 1540, 139). Such natural tendencies could be converted into moral norms, however, by attributing the teleology of natural phenomena to God's design, so that natural tendencies are understood as expressions of divine reason. That was the solution adopted by Gerson, for whom 'right reason and its dictate are found primarily and essentially in God' (1706, 26). In that case, however, it is God's decision about what is good for each type of creature that adds a normative dimension to what is otherwise a mere natural fact, and natural law (in the normative sense) becomes a version of divine commands theory. But even that solution raises a second problem, concerning the specificity of the commands that could reasonably be inferred from natural tendencies and could thereby be attributed to God.

Aquinas distinguished law into three types that were arranged in a tri-level hierarchy: (i) divine law (*lex aeterna*), which might be described as the justice that is intrinsic to God's nature; (ii) natural law, and (iii) human law. According to this division, natural law is an expression in nature of God's law and is discoverable by human reason—even in its corrupted state that results from Adam's sin. Bèze seems to have adopted a version of that theory of natural law, which 'remained in human nature no matter how corrupted it has become' (1970, 45). Evidently, it was also assumed that God revealed the moral law more explicitly and less ambiguously in the Bible, and that there could be

no inconsistency between an evangelical ethic and natural law; the latter was merely one part of the former, i.e., the part that could be known without revelation.

Thus, even if natural tendencies acquired a normative dimension as indirect expressions of God's will, there may still be a wide range of human actions and political arrangements that satisfy them. Thomist natural law theorists reverted to a theory of rational agency at that point, and understood the natural law as merely requiring human agents to choose reasonable means to satisfy their natural or innate tendencies. In that case, however, one could not conclude that God required human agents to adopt very specific political arrangements—at least, not in virtue of natural law. He merely required them to choose means that are likely to satisfy their natural inclinations. For that reason, according to the Thomist theory, the specific political arrangements that are made in a given jurisdiction for the pursuit of characteristically human ends belong to civil law rather than to universally binding principles of natural law. Thus, when Bodin or the monarchomachs cited natural law, without further clarification, they failed to show that the specific political arrangements that they proposed belong to natural law rather than to civil law (which may vary from one jurisdiction to another). In particular, there was no plausible argument to show that the type of absolute monarchy proposed by Bodin was required by, rather than merely permitted by, a Thomist natural law theory.

The relevant question, therefore, for those who appealed to natural law in political theory was how some human beings came to be ruled by others, and why it would have been *rational* for them to accept such a political arrangement unless it were in their own interests. This was the question subsequently asked by Locke in *The Second Treatise*:

> If Man in the State of Nature be so free…If he be absolute Lord of his own Person and Possessions, equal to the greatest, and subject to no Body, why will he part with his Freedom? Why will he give up this Empire, and subject himself to the Dominion and Controul of any other Power? (1967, 368)

Locke described his own answer to that question as 'obvious'. The enjoyment of natural freedom in a state of nature is uncertain and is more likely to be secured in a peaceful commonwealth. Bèze and Mornay gave the same reason. For them, the consent of the governed is a necessary condition for the validity of any system of government that subjects are morally bound to obey.

This conclusion was not peculiar to the monarchomachs; other natural law theorists who borrowed from Aquinas also proposed it. Bellarmine argued, in *On Laymen or Secular People*, that political authority, when considered 'in general', comes immediately from God alone because it is implied by the sociable nature of human beings that God created. But this authority resides 'in the entire multitude' because God did not assign it to any particular person; consequently, it is permissible for the multitude, for a legitimate reason, to change 'a monarchy into an aristocracy or a democracy, and vice versa' (2012, 22). Suarez expressed similar sentiments in his *Treatise on Laws and on*

God as Lawgiver: 'civil power, whenever it resides—in the right and ordinary course of law—in the person of one individual or prince, has flowed from the people as a community, either directly or indirectly; nor could it otherwise be justly held' (1944, II, 383–4). Suarez's understanding of political authority antagonized the French crown even further when he distinguished between the 'directive' power of a pope and his 'coercive' power over Catholics, in *A Defence of the Catholic and Apostolic Faith against the Errors of the Anglican Sect* (1613). He argued that the Pope 'may use coercive power against kings, even to the point of deposing them from their thrones, if there be a valid cause' (1944, II, 685). Although neither Suarez nor Bellarmine were French, their works were condemned by the Paris *parlement* as challenges to the Gallican church and to the absolute power claimed on behalf of the French crown. The official condemnation of Bellarmine's work in 1610 is discussed above (1.3). Suarez's *Defence of the Catholic and Apostolic Faith* came to the attention of the *parlement* soon after its publication and was also condemned although, on this occasion, French Jesuits avoided direct confrontation with the crown.

If, then, one prescinds from the biblical authorities on which Luther, Calvin, and their French successors relied, their appeals to natural law remained inconclusive without further argument. The Thomist version of natural law did provide a rationale for accommodating human political arrangements within the general scope of divine law, but only in the sense that such arrangements should be chosen rationally and designed to facilitate the realization of human ends. If they satisfied those conditions, they would then be consistent with normative natural law. Bodin failed to show that divine law, as reflected in human reason, requires the sovereignty of a state to be invested in a single (male) person. In contrast, the monarchomachs asked how it would ever be rational for subjects who enjoy liberty in a state of nature to agree to be ruled without attaching some conditions to their decision. That introduced the consent of the governed as one of the fundamental features of any just state. It was to be much more enduring than Bodin's more famous thesis, even if it faded from view during the lengthy reign of Louis XIV.

7.7 Biblical Politics in the Seventeenth Century

The disputed status of philosophical theories, such as natural law, in contrast with the assumed certainty of divine revelation in Scripture, persuaded many political commentators—including some who were notoriously associated with the majority church in France—that they should base their political theory on the Bible. This was especially true of those who were impressed by sceptical concerns about the fragility of human knowledge, and was exemplified in the seventeenth century in the political writings of Pierre Charron and Blaise Pascal. A minor variation on that approach was to accept a biblical account of the ultimate source of political authority and then explain its implementation in the complexity of human history by recourse to empirical accounts of how different societies may operate successfully. This was the view of Gassendi.

Before Charron had published his treatise on scepticism and wisdom, he wrote *A Christian Discourse: That it is never permissible for a subject, for any reason or cause whatsoever, to join a league, conspire, or rebel against their King* (Charron, 1589), which he submitted to a member of the Sorbonne faculty in April 1589. He conceded that he had previously supported the Catholic league, but now realized the error of his ways. The source of his certainty, untouched by scepticism, was his religious faith; his analysis of the duties of Christian subjects towards the 'powers that be' was such that Luther or Calvin could have endorsed it without qualification.

Charron identified three teachings from Scripture concerning the obligations of subjects towards civil authorities. The first was an explicit, universal, and very comprehensive command to obey kings, which was based on the text of Romans 13. Charron quoted in Latin from the Vulgate edition: 'Let every soul be subject to higher powers.' One is not bound to obey them because they are good, he argued, but because they are legitimate rulers; therefore, one must obey magistrates even when they are evil. The reason for doing so is not necessity or the harm that may result from disobedience, but for reasons of conscience (1986, 875). The second biblical teaching was that one should refuse to obey magistrates in one exceptional situation, namely, if they issue commands that are inconsistent with God's law. Finally, Charron extracted from the Bible the same limited options that Luther and Calvin had offered those who refuse to obey civil powers when they command subjects to breach divine law: they had a choice to suffer or flee, *fugere aut pati* (1986, 877), but they were never justified in taking up arms against a legitimate ruler. Evidently, this failed to address the question raised by the Reformers, about what response is permissible when a magistrate is a tyrant without title.

Pascal's theory of civil obedience was closer to that of Calvin, because they both shared the same extreme view of human sinfulness and they understood the suffering caused by tyrants as just expressions of divine retribution. Pascal's assessment of the baneful and enduring effects of Adam's fall from grace implied that human beings had no access to an independent criterion by which to judge the justice or otherwise of political systems or the legitimacy of laws that have been enacted by those who exercise political power. The mere fact that some provision had been enacted as a law made it just (in human terms): 'Justice is what is established; thus all our established laws will necessarily be accepted as just without being examined, because they are established' (Fr. 530/545: II, 776). The *Pensées* provide an even more extreme version of resignation to the status quo by emphasizing the contingency of civil law: 'justice, like finery, is dictated by fashion' (Fr. 95/57: II, 562).

The political conservatism that was implied by Pascal's theory of human corruption was confirmed by his experience of civil war. He reflected, in the *Pensées*, a conclusion that could as easily have been penned by Bodin: 'the worst evil of all is civil war' (Fr. 128/87: II, 569), and supported this pessimistic conclusion by the authority of the gospels. Thus, in the *Provincial Letters*—which challenged the alleged worldly wisdom of his Jesuit opponents—he relied exclusively on the Bible to guide Christians in their

political duties: 'The Church . . . has always taught her children not to render evil for evil . . . to obey magistrates and superiors, even those who are unjust, because we must always respect in them the power of God who has set them over us' (I, 744). This kind of uncritical obedience to political authorities, according to Pascal, did not require subjects to believe that magistrates were more meritorious than themselves or more deserving of greater respect. As he explained in the *Three Discourses on the Condition of the Mighty*, it is a purely contingent matter that some people are superiors and others are subjects, and the former are to be obeyed simply because God commanded us to do so (II 194–9).

The required obedience, however, is limited to external behaviour; we are not required to believe that a magistrate's commands are true, moral, or just. This was exemplified in the famous dispute about five heretical propositions that were allegedly found in the works of Jansen. Pascal and supporters of the Jansenist cause did not believe that Jansen had written anything that was inconsistent with Catholic teaching. They agreed to obey the formulary imposed on them by political and ecclesiastical authorities, but they never agreed in their conscience with its content. External or behavioural compliance with the commands of civil powers was enough.

Gassendi and Hobbes both lived in Paris in the early 1640s, where they were associated with the Mersenne circle. While Hobbes developed his political theory in the spirit of Bodin (whom he rarely acknowledged as a predecessor), Gassendi addressed the issue about political consent that had been raised especially by Bèze: assuming the divine origin of all legitimate political authority, does God communicate that authority directly to princes or indirectly through the consent of those whom they govern? In the language of natural law theory, that amounts to asking: does human nature define a single way in which commonwealths must be ruled, or does it require merely that some rational legal or constitutional system be adopted in such a way that alternative systems may be equally compatible with the requirements of reasonable choice? Gassendi argued for the latter option. He concluded that while individuals spontaneously or voluntarily endorse some contractual arrangement to protect their primary interests—as defined by the Epicurean ideal of the good life—they have a range of reasonable options from which to choose when establishing the specific political and legal structures that obtain in a given state.

Gassendi argued in the *Syntagma* that the contract by which individuals associate to protect their individual interests does not automatically imply a specific type of state or legislative system. They need, in addition, a further contract to designate their rulers:

> Since it would be inappropriate for the whole multitude to convene and express their views individually (or by groups) or cast votes in order to make a decision about something, the multitude itself spontaneously transfers that power either to a few people or to a single person. (1658: II, 755b)

Having acknowledged the transfer of authority from members of a civil society to their ruler(s), Gassendi expressed a preference for a monarchy over other forms of government,

but he did so for pragmatic reasons rather than, as Bodin claimed, because the very concept of legislating presupposes the absolute power of the legislator. The choice between alternative types of government fell within the scope of the virtue of political prudence.

Despite Gassendi's sympathy for the theory that the consent of the governed is conditional, he implied in his discussion of the virtue of fortitude that it is preferable to suffer the consequences of tyrannical rule rather than risk the kind of civil war that was justified by Calvinist theorists of the previous century; 'it is nature itself that commands it insofar as it may serve the common good, on the protection of which the safety of each individual depends—which is natural for everyone' (1658: II, 778b). This is consistent with Gassendi's understanding of natural law as being equivalent to the way in which human beings, by using their reason, strive to realize their characteristic objectives. Natural law is not some blind tendency that is shared with other animals; it is found only in human beings, insofar as they use reason to form a society, to establish a system of government, and to enact and observe laws that are recognized by all or, at least, by a majority of individuals:

> Although, properly speaking, natural law may be said to be only in human beings, insofar as reason pertains to their nature or is its most important feature, reason itself (or its dictates) is identical with the dictates of nature. Thus the law of nature is nothing else in human beings apart from the law of reason or reason itself. (1658: II, 800a)

The extent of Gassendi's borrowing from diverse ancient sources is such that it is often difficult to identify the thesis that he proposes or the reasons that he offers in its support (5.4 above). Nonetheless, he seems at least to have accepted that the benefits of a social contract are such that it is based on reason, and the details of its design and implementation are subject to local customs and conditions. Natural law, therefore, is whatever human reason identifies as being in the long-term interests of individuals.

7.8 Religious Toleration

It was extremely difficult for all the French political theorists of this period to formulate an independent, ecumenical account of the limited powers of civil government because they relied on the primacy and certainty of their disparate theologies. Luther's criticism of civil authorities that legislate for religious belief was a first step towards a theory of religious toleration: 'the temporal government has laws which extend no further than to life and property and external affairs on earth' (1962, 105). But neither Luther nor Calvin took the next step, as Brück had done, to conclude that civil magistrates have no jurisdiction at all in religious matters. As long as the state's powers were deployed to defend the 'true faith', as Calvin requested in the condemnation of Servetus, they thought it was both legitimate and obligatory for a state to protect citizens against idolatry and heresy. It seems obvious, in retrospect, that religious toleration was impossible as long as different churches assumed that their own beliefs were

the 'true faith', and that the jurisdiction of the civil government included a duty to suppress 'false' religious beliefs. It took another century before Locke argued, in his *Letter concerning Toleration* (1689, 2010), that a civil government has no competence to decide the truth or otherwise of religious beliefs, and that churches are fundamentally misguided if they invoke the power of the state to defend their religious beliefs and practices.

Nonetheless, during the wars of religion in France in the mid-sixteenth century, there had been interludes when religious toleration was mooted or unofficially approved as a pragmatic feature of public policy. These early intimations received their first and most public endorsement in the Edict of Nantes (1598), when Henry IV decreed a limited degree of religious freedom for Huguenots in an officially Catholic France. Henry ordained that 'the Catholic Religion shall be restored and re-established in all places and quarters' of the kingdom, while also permitting 'those of the Reformed Religion to live and dwell in all the cities and places' of the kingdom without being 'molested, or compelled to do anything in religion, contrary to their conscience' (Duke et al. 1992, 120). Many tolerant features of the Edict were balanced with other less tolerant provisions, such as obliging members of reformed churches 'to keep and observe the festivals of the Catholic Church' and not to 'work, sell, or keep open shop . . . on the said festivals' (ibid. 121). Even that modest degree of toleration was rescinded, however, when Louis XIV revoked the Edict in 1685.

Jean Bodin was, improbably, the French theorist who contributed most to a theory of religious toleration in the sixteenth century.[17] As early as 1559 Bodin had recommended, in an *Address to the Senate and People of Toulouse, concerning the Education of the Young in a Republic*, that 'there are no laws so divine and sacred that they could harmonize a society more firmly than the common education of children' (1559, 55a). Consequently, 'magistrates, who hold the power in a commonwealth, should discourage young people from abandoning one and the same religion if we are to hope to have a commonwealth of any kind' (1559, 56a). There is little doubt that Bodin still held similar views when he subsequently published the *Commonwealth*. There he endorsed religious uniformity in a state as a means to realize civil harmony and, consequently, he advised monarchs to exclude members of minority religions from public offices in order to discourage religious diversity. Even in 1576, however, Bodin refrained from attempting to identify which was the true faith, and he did not support coercive measures to achieve religious uniformity:

> I do not speak here about which religion is best . . . but if a Prince were certain of the true religion and wished to encourage his subjects (who are split into factions and sects) to join, it is not necessary in my opinion that he use force because the more one forces the will, the more stubborn it becomes. (1576, 509–10)[18]

[17] Bodin's theory of toleration is discussed in Remer (1996, 205–30) and Rose (1980, 134–48).

[18] Bodin quoted a version of this text when visiting England, as an objection to the public hanging of Edmund Campion in 1581 (Baldwin 1937, 166).

This political understanding of religion as a cohesive force in society, without reference to whether it is 'true', was compatible with the views Bodin expressed in two later works, *The Theatre of Universal Nature* (1596) and the *Colloquium of the Seven*.[19] He acknowledged, on the final page, that *Theatre* was written 'when all of France was ablaze in civil war' (1596, 633). Not surprisingly, then, *Theatre* focused attention on how God, as the principle of unity in nature, created a harmonious world that was consistent with the range and diversity of natural phenomena that it contains. In a similar way, he argued, the unity of a people or nation is compatible with a diversity of religious practices, as long as those involved perceive their differences as expressions of an underlying common belief in God.

The theme of harmony between diverse religious practices was central to the *Colloquium*, in which Bodin used seven discussants to represent a range of religious traditions, including Catholic, Reformed, Jewish, and Islamic. In the course of their lengthy discussion, many of the ideas that had appeared earlier in *Commonwealth* assumed a new urgency. For example, the best thing for a state would be that 'all citizens be joined in the same sacred rites and in the same worship of the divine will' (1975, 151). When it was suggested that religious unity should be based on the 'true faith', however, the discussants readily acknowledged the undecidability of that question. Since 'no one could decide which is true among all the religions, is it not better to admit publicly all religions of all people in the state …' (1975, 152). There was one exception, however, to the policy of tolerating all religious views—as there was subsequently for Locke. Atheism was not politically acceptable. Bodin preferred any religion to none: 'it is much better to have a false religion than no religion. Thus there is no superstition so great that it cannot keep wicked men in their duty' (1975, 162) through fear of God.[20] Bodin's preference for one religion rather than many in each state, and for any religion rather than none, were both motivated by the same political reason—to persuade citizens to observe their moral and political obligations and thereby to realize the peace of a kingdom more readily.

Bodin's personal religious views also seem to emerge in comments such as 'I believe that all the religions of all people … are not displeasing to God' (1975, 251). When the participants in the colloquium had concluded their final discussion, 'they cultivated their piety in remarkable harmony and the integrity of their lives by shared living and pursuits, but they had no further discussion of religions, although each of them maintained his own religion in the greatest possible purity' (1975, 471).[21] Bodin's personal views about religion, at least in this late period of his life, seem to have come close to

[19] The *Colloquium* was completed in 1588, but was not published during Bodin's lifetime. Despite that, it circulated in manuscript copies in Europe until it was eventually published in 1857. Recent debates about the authorship of this manuscript are summarized in Malcolm (2006); Bodin (1984, li–lx) provides a list of manuscript copies.

[20] Bodin had expressed the same view in 1580 about witches who change their religion. He condemned witches who denied God completely, but not those who 'deny God in order to change and take up another religion … either true or superstitious, which can keep men in the fear of committing offence' (1995, 204).

[21] I have amended the English translation in Bodin (1975).

deism—that there is a God who controls nature and human affairs, and that differences in ways of honouring God are much less important than the recognition of a divine and natural law that supports the unity and peace of a commonwealth. For that reason, there is no exclusively true religion—they all share a common respect for the divinity, although they express it in different ways. Accordingly, Bodin rejected the view that was proposed with equal inflexibility by the Council of Trent and by Protestants, that one's eternal salvation depends on believing what some church classified as orthodox beliefs. There was no justification, therefore, for coercing people into one religious tradition rather than another.

This justification of religious toleration—that all religions share a fundamental truth about the existence of God and about the respect and worship that is owed to God—was supported by a second reason. Bodin repeated the previous advice he had given in *Commonwealth* against coercing people into a particular religious faith or practice: 'it is not safe for princes or magistrates to try to uproot religions which have been received harmoniously for a long time and whose roots are deep' (1975, 154). His comments about religious coercion—that it is neither safe nor necessary—were not based on respect for the consciences of believers, but on the predictable, political consequences of religious coercion. As he expressed it in *Commonwealth*, when people are forced to change their religion they tend to resist stubbornly, and that leads to civil unrest rather than harmony. A state should tolerate religious diversity, therefore, because all religions (even the most superstitious) are true at least in the sense that they worship God and, when a state attempts to force citizens into membership of a single church, they are likely to resist and cause civil disorder.

Bodin may have stumbled unwittingly onto a radically new concept of political theory, which is not derived logically from first principles, whether biblical or philosophical—the truth or plausibility of which remains uncertain. Bodin adopted a pragmatic solution to a political problem rather than a biblically based ideal of how God decides that states must operate. According to that solution, the primary objective of a state is to provide a stable, peaceful context in which citizens may pursue their legitimate interests, and the worst possible condition for citizens, which was notoriously exemplified in sixteenth-century France, was to be embroiled in interminable civil wars and taxed heavily to support the foreign wars of the monarch's whim.

8

The Equality of the Sexes

'One should be suspicious of everything that men have said about women because they are both judges and litigants.'[1]

8.1 Introduction

Alexis Trousset (using the pseudonym Jacques Olivier) published a characteristically misogynist tract in 1617, *Alphabet of the Imperfection and Malice of Women*, in which he listed alphabetically the moral faults of women. The preface illustrates the style and content of the whole book:

Woman! If your arrogant and fickle mind could know the fate of your misery and the vanity of your condition, you would flee from the light of day and seek out the shadows; you would hide in caverns and caves; you would curse your misfortune, regret your birth and hate yourself. Nonetheless, the extreme blindness that deprives you of this knowledge makes you live in society as the most imperfect creature in the universe, the scum of nature, the breeding ground of evils, the source of controversy, the laughing stock of the insane, the scourge of wisdom, the firebrand of Hell, the instigator of vice, the cesspool of filth, a monster in nature, a necessary evil, a multiform chimera, a harmful pleasure, the bait of the devil, the enemy of the angels, the mask of God, deforming and undermining the wisdom of the very God who created you. (1617a, 3–4)

When challenged by a critic to provide a justification for his extreme hostility to women, Trousset appealed to the authority of 'Holy Scripture and reliable authors, both philosophers and theologians' (1617b, 29).[2] Trousset's virulent alphabet was reprinted frequently throughout the seventeenth century and was 'newly translated out of the *French* into *English*' as *A Discourse of Women, Shewing their Imperfections Alphabetically*.[3] Its subsequent republication in English testifies to the enduring popularity of misogyny among readers in both languages.

[1] Poulain de la Barre, *The Equality of the Sexes* (2013, 151).

[2] Trousset had invoked the same authorities in the *Alphabet*: 'the reading of the Holy Scriptures and the most serious and profound authors of past and present centuries' (1617a, 332).

[3] There were French editions in 1619, 1626, 1628, 1634, 1640, 1646, 1658, and 1683. The English edn. (Trousset 1662) omitted the author's name and the prefatory material quoted in the text above, and was reprinted 1673.

The dispute about women's role in society had oscillated in the sixteenth century between two alternatives—those who claimed that women were inferior to men, and those who argued that they were superior. Erasmus reported a standard version of the inferiority thesis in *Praise of Folly*, which he allegedly borrowed from Plato:[4]

> When Plato shows himself in doubt whether to place woman in the class of rational creatures or in that of brutes, he only wishes to point out how flagrant is the folly of the sex. For if by chance some woman wishes to be thought of as wise, she does nothing but show herself twice a fool. It is as if one took a bull to the masseuse, a thing quite 'against the grain,' as the phrase is. It is doubly a fault, you know, when against nature one assumes the color of a virtue, warping one's character in a direction not its own. Just as according to the proverb of the Greeks, 'an ape is always an ape, though dressed in scarlet,' so a woman is always a woman—that is, a fool—whatever part she may have chosen to play. (1970, 23–4)

Although the original text of the *Timaeus* does not support this interpretation, it was transformed into a commonplace Platonic source to show that women are less rational than men. The opposite view in the debate—that women are superior to men—was defended by Erasmus' contemporary, Cornelius Agrippa (1486–1535), in his *Declamation on the Nobility and Pre-eminence of the Female Sex*. Agrippa conceded that, while 'one sex is not pre-eminent over the other because of the nature of the soul . . . in everything else apart from the divine essence of the soul, women . . . are almost infinitely superior to the uncouth male gender' (1529, 4A).

Similar contradictory theses about women continued to appear in the seventeenth century. Rolet's *Historical Account of the Wiles and Craftiness of Women* argued that women were the exclusive source of all the evils in the world. According to Rolet, 'there is no animal in the world more dangerous than woman' (1623, 3–4) and, since their malice is almost infinite, he would exhaust his supply of paper if he tried to provide a comprehensive account of female malice from the beginning of time. In contrast, the title of Jacquette Guillaume's book makes its thesis explicit: *Illustrious Women: or it is proved by sound and convincing reasons that the female sex surpasses the male sex in all kinds of ways* (Guillaume, 1665). Gabriel Gilbert (1650) and François Du Soucy (1646) likewise argued for the superiority of women. In addition to these tracts about the inferiority or superiority of women, there was also a distinct genre that avoided direct comparison of the sexes by reporting famous women who became eminent because of their virtues. Boccaccio had provided an exemplar of this in *Concerning Famous Women*, which was mined by subsequent writers for historical examples of illustrious women.[5] Those who borrowed from Boccaccio included Louis Machon, *Discourse or Apologetic Lecture in Support of Women* (Machon, 1641), Madeleine de Scudéry, *Illustrious Women* (Scudéry, 1642), and Pierre Le Moyne, *The Gallery of Great Women* (Le Moyne, 1647).

[4] Erasmus relied on *Timaeus* 91A–D.

[5] *De mulieribus claris* was written in Italian in 1361–2, and published in Latin in 1463.

In contrast with the repetitive dispute about the inferiority or superiority of women, a new thesis about equality and difference emerged in seventeenth-century French writing, the first proponent of which was Marie de Gournay*.

8.2 Marie de Gournay

Gournay's first publication, a short novel entitled *The Promenade of Monsieur de Montaigne* (1594), revealed her feminist sympathies in rhetorical digressions, such as: 'It is commonly believed that, in order to be chaste, a woman should not be educated; truly, one fails to honour chastity if one believes that it can be found attractive only by those who are blind' (2002, II: 1355). Some of these defences of women's virtue and natural ability were deleted from later editions of the *Promenade* and integrated into *The Equality of Men and Women*, which was published in 1622. Likewise, the Preface that she composed for Montaigne's *Essays* in 1595 included the ironic sentiments about the 'blessed' condition of women that re-appeared, in 1626, in the opening sentences of *The Ladies' Complaint*.[6] The latter was a short, sharp rebuff to male authors who scorned women while failing to engage with their writings, and first appeared when its author was already fifty-eight years old.

Marie le Jars was among the first to argue for the equality of men and women and thereby helped set the agenda for its discussion for the remainder of the seventeenth century. Her distinctive thesis is stated in the opening sentences of *Equality*: 'Most of those who defend the cause of women . . . adopt the completely opposite view by claiming superiority for women . . . I am content to make women equal to men, for nature is also as opposed to superiority as to inferiority in this respect' (2013, 54).[7] The meaning of 'equality' emerges in the course of the arguments offered in its defence.

The most obvious feature of Gournay's *Equality* is that it is replete with references to ancient and modern authors, in the style of Montaigne's *Essays*, and that it cites many examples of women who realized the virtues or achievements that she claimed were equally distributed among men and women. Despite that, she denies that her aim is to prove her thesis with reasons or examples.

> If I offer a favourable opinion about the dignity or ability of ladies, I do not claim to be able to prove it at this juncture with reasons (because those who are tenacious will be able to dispute them) or by examples (because they are too familiar), but only by the authority of God himself and of the Fathers who were buttresses of his Church, and of those great philosophers who have enlightened the universe. (2013, 55)

[6] 'Blessed are you, reader, if you are not a member of the sex that has been excluded from all goods, forbidden to be free, and also forbidden all the virtues because you were excluded from the power and moderation by the use of which virtues are acquired' (2002: I, 283–4, note A). This was deleted from later editions of the Preface and re-used in *The Ladies' Complaint*.

[7] I quote Gournay's two essays on equality from Clarke (2013).

This implies that the ultimate authority on which Gournay's equality thesis rests is Christian faith and its interpretation by patristic theologians—the so-called of 'Fathers' of the Church. That exclusive appeal to faith, however, seems to be inconsistent with Gournay's frequent citation of counter-examples to opponents' views and the fact that she constructs some compelling arguments in *Equality*.

One of these arguments occurs towards the conclusion of *The Ladies' Complaint*, which criticizes the so-called 'learned' who claim to have established a general conclusion about the inferiority of women's abilities. Gournay dismisses their logic as follows: 'they are adequately conquered and penalized for displaying their stupidity when they refute the particular by the general—if one could assume that, in general, the ability of women is inferior' (2013, 78). She had identified many well-known examples of women who were as learned, virtuous, and competent as some men—these were uncontested facts—while her opponents defended a general proposition to the effect that all women are inferior to men. It is a matter of logic, however, that every universal claim is subject to falsification by even one counter-example. Thus any valid argument based on historical data should have been formulated as follows: since there are at least some women who are as capable as men, it cannot be true that all women are inferior to men. Specific examples of women who were notable for their outstanding virtues or learning logically imply that any general thesis about the inferiority of women is false.

The Equality of Men and Women also relied on reason to show that those who proposed a general thesis about women's alleged inferiority were inconsistent with their own philosophical assumptions. Although that would not prove the equality of the sexes, it would at least undermine opponents' arguments. Scholastic philosophers had, over many centuries, developed and defended a thesis that was borrowed from Aristotle, according to which each naturally occurring type of reality has a unique form. They understood a form as the specific property or cluster of properties that defines something as the kind of thing that it is. This philosophical theory applied to every type of entity, animal, vegetable, or otherwise. In the case of human beings, it was almost universally taught that the defining feature of a human being was the possession of a rational soul or mind; accordingly, having a rational soul or mind was a necessary and sufficient condition for being human. This Aristotelian theory had been confirmed by centuries of dogmatic teaching within Christian churches, and became especially explicit in the fourteenth and fifteenth centuries, in response to neo-Aristotelians such as Pietro Pomponazzi (see above, 5.2). The decision of the Lateran Council was definitive for Catholic philosophers, when it taught that each individual has a distinct immortal, spiritual soul, and that it is impossible for an individual to be partly ensouled or less ensouled than someone else. Either one has an individual soul or one is not human. That provided an incontrovertible basis for arguing that men and women are essentially equal; they are both human only insofar as they possess rational minds. Evidently, they may still differ in respect of inessential features—such as their size, shape, skin colour, linguistic facility, etc.—but they are essentially either human or not

human. Gournay exploits that scholastic doctrine to argue that those who deny women's essential equality with men are inconsistent:

> . . . the human animal, if understood correctly, is neither a man nor a woman because the sexes were not created unconditionally or in such a way that they constitute different species, but exclusively for the purpose of propagation.[8] The unique form and specific characteristic of this animal consists only in the rational soul; and if we are allowed to laugh in the course of this argument, it would not be inappropriate to jest that there is nothing more like a male cat on the windowsill than a female cat. Man and woman are so much one that, if man is more than woman, then woman is more than man. (2013, 65)[9]

This argument shows that it is inconsistent on the part of critics of women's equality to endorse the views of the scholastics and Church councils and still deny the essential equality of the sexes.

For those philosophers who were not subject to the jurisdiction of the Catholic Church, however, Pomponazzi had suggested an alternative, consistent position. He suggested that, on purely philosophical grounds, one could not prove the individuality and immortality of the human soul, although it could be accepted as a matter of religious faith. Gournay came close to adopting that strategy, while not contradicting the Lateran Council (which had rejected the possibility of conflicting truths from different sources). Gournay was reluctant to get involved in the kind of philosophical and theological disputations that were popular at that time among those who had acquired an education in men's colleges. Her extensive editorial work on Montaigne's *Essays* may also have inclined her towards Pyrrhonism about philosophical arguments, and she may have concluded that biblical revelation—as understood in the Catholic Church to which she belonged—provided the most reliable guide to the truth in this matter and that she should rely 'on authority of God himself' and the Fathers of the Church.[10] That would limit the effectiveness of her argument to those who shared her faith; but even such a limited victory in an almost universally Christian France would have been significant.

Gournay accordingly borrowed what she accepted as God's revelation about the equality of the sexes from the Genesis account of creation and from other texts in the New Testament. She assumed as a matter of faith that 'mankind was created male and female, according to Scripture, while counting these two as only one creation' (2013, 65). She relied in this context on Genesis 1:27: 'And God created man in his own image:

[8] The 1622 edition has the following alternative: 'the sexes were not made unconditionally, but *secundum quid*, as they say in the Schools; that is to say, exclusively for the purpose of propagation'. The French term (*simplement*) that was substituted by Gournay in later editions of the text corresponds to the Latin term '*simpliciter*', which was usually contrasted with '*secundum quid*' by scholastics. In other words, God did not create two essentially distinct types of human being but two sexes that differ merely in respect of their roles in propagation.

[9] Gournay returns to this theme in *The Ladies' Complaint*, when she refers to 'the eternal decree of God Himself, who produced no more than a single creation of two sexes' (2013, 78).

[10] This interpretation is defended in O'Neill (2011).

to the image of God he created him: male and female he created them.' The gendered connotations of 'man' in English do not reflect the Latin text of the Bible that Gournay used, in which the term '*homo*' is applied inclusively to both men and women. This point was supported by her comment that, despite being called the 'Son of Man', Christ was evidently the son of a woman. She also appealed to Saint Basil to confirm her interpretation, even quoting the final phrase in Latin from the Vulgate version of Saint Mark's gospel: 'The virtues of man and of woman are the same because God bestowed on them the same creation and the same honour; *masculum et feminam fecit eos Deus*' (2013, 65–6). Other Church Fathers, including Gregory of Nyssa and Theodoret of Cyrrus, had adopted similar interpretations of 'man' in their commentaries on Genesis. In the passage to which Gournay refers, Theodoret wrote:

> It would have been very easy for God to command and to populate the whole world with inhabitants . . . by a single act; but to prevent people from believing that there is some difference in nature between people, he decided that all the innumerable human nations would be born from a single couple . . . It was for the same reason that he did not make the woman from a different material but he took the materials to form woman from man . . . that is also why God prescribed to men and women the same laws, because the differences between them occur precisely in the structure of their bodies rather than their souls. Woman is endowed with reason, just like man; she is capable of understanding and being aware of her obligations; she knows what she should do and what she should not do, just like man . . . Not only men but women also should have access to the divine temples; and the law that allows men to participate in the divine mysteries does not exclude women but commands them, in the same capacity as men, to be initiated and to participate in those mysteries. In addition, that law offers men and women the same rewards for virtue because they strive together to realize the virtues. (1864: vol. 83, 943)

In the biblical account of creation in Genesis, God is repeatedly said to have created human beings in his own 'image and likeness'. When this creation myth was filtered through the categories of Greek philosophy by the Church Fathers, it was translated into the claim that men and women share the same nature because they equally possess individual spiritual souls. Gournay adopted that terminology and concluded that, in respect of 'those whose nature is one and the same, one must conclude that their actions are also the same, and that their esteem and praise are therefore equal when their works are equal' (2013, 66). The correspondence between actions and natures was derived from a scholastic principle that validated arguments (i) from knowledge of a given nature to the kind of actions that it can perform or, retroductively, (ii) from knowledge of certain actions to the underlying nature from which they must result.

Gournay's concluding remarks in *Equality* highlight the absurdity of suggesting that women are images of God but not images of men, as if men were superior to God:

> If one believed that Scripture commanded women to yield to men, as if it were unworthy on their part to oppose them, look at the absurdity of what that would imply: woman would find herself worthy of being made in the image of the Creator, of benefiting from the most holy

Eucharist and the mysteries of redemption and of paradise, and of the vision—indeed, the possession—of God, but not of possessing the advantages or privileges of man. Would that not be equivalent to declaring that man is more precious and more exalted than all these things and, therefore, to committing the most serious blasphemy? (2013, 73)

Nonetheless, the central claim—that women and men have exactly the same nature, or what Gournay calls 'the unity of the sexes' (2013, 73)—was still consistent with assigning different roles to women in civil society or in churches, although that would raise further questions about the rationale and justification of such differential assignments, especially if they were based on biblical texts.[11] Since Gournay relied on Scripture to support her main thesis, it would have been inconsistent for her to dismiss the biblical passages that were usually understood as being unfavourable to women. She could, however, interpret them merely as prescriptions for local arrangements in the early Church or as unique decisions by God about specific issues, rather than as general statements of women's inferiority.

For example, Genesis 3:16 suggests that God punished Eve for her transgression in the Garden of Eden: 'To the woman also he said: I will multiply thy sorrows and thy conceptions: in sorrow shalt thou bring forth children, and thou shalt be under thy husband's power, and he shall have dominion over thee.' Gournay commented: 'However true it may be, as some maintain, that this submission was imposed on women as punishment for the sin of eating the apple, that is still a long way from showing the claimed superior dignity of men' (2013, 73). In other words, to punish one person and not another does not imply that one is less human or worthy than the other; in fact, the very concept of punishment presupposes that those being punished are fully responsible for their actions as human beings. If God held Eve primarily responsible for the Fall, he must have considered her at least equal to Adam as a moral agent. In a similar way Gournay understood the instruction of St. Paul to the church at Corinth—that 'the head of the woman is the man' (I Cor. 11:13)—as merely a practical arrangement to guarantee peace within marriages, because conjugal partners might fail to live in peace and, if one partner acceded to the other, it would help avoid controversy within marriage. Paul's other injunction against women preaching in church was also understood by Gournay as nothing more than an attempt to avoid male churchgoers being tempted by the sight of attractive women preachers.

Finally, Christian churches traditionally understood the Incarnation as God appearing in the world as a human being. That necessitated adopting the body of either a man or a woman, and Gournay accepted that 'the demands of propriety required' that Christ appear as a male in the culture of the first century. She accepted that Christ could 'not have avoided scandal if he had been born a woman and, as a young person,

[11] For example, Bellarmine accepted the essential equality of men and women but still assigned to men the authority to rule women: 'all men are equal by nature, and become unequal through sin, and therefore one has to be ruled by another . . . proper order implies that the inferior be ruled by the superior, the woman by the man' (2012, 29, 26).

had mingled with the crowds at all times of the day and night' when preaching. However, if anyone were 'so foolish as to imagine that God is masculine or feminine' they would show clearly 'that they are as incompetent in philosophy as in theology' (2013, 72). It may have seemed blasphemous in early modern France to suggest that God is not male, but it seems even more absurd to assume that God is a sexual being who resembles the bearded men that are often used to depict Christ in paintings. Since God is not a male, that provides another reason for concluding that men have no greater resemblance to God than women.

Despite the intrinsic plausibility of Gournay's interpretations of biblical passages, however, it is difficult to see how she could have won the public endorsement that she sought. She was not recognized as a biblical scholar and, in contrast with Van Schurman (8.3), her grasp of biblical languages was inadequate to the scholarly challenge that she assumed. An even more serious obstacle to interpreting Scripture in a way that is favourable to women was that Gournay belonged to a church that claimed for its centralized teaching office in Rome an exclusive authority to interpret the scriptures (3.3 above). Evidently, Gournay might have argued that there was no universal agreement among the Fathers of the Church about the status of women, but the lack of a similar consensus about astronomy had failed to protect Galileo. Gournay therefore was in a situation in which centuries of clerical misogyny had denied equality to women in a church that stopped short of teaching formally that women are inferior to men by nature. While she was not contradicting a dogmatic teaching of her church, therefore, she was claiming to interpret the Scriptures in a novel manner when the church to which she belonged reserved that function exclusively to the pope and the bishops. That was unfortunately an untenable position for a Catholic woman in the early seventeenth century.

One final theme that emerged clearly in Gournay's writing, which is repeated by her successors, is the effect on women of a complete lack of education.

> If, therefore, women succeed less often than men in achieving various degrees of excellence, it is surprising that the lack of a good education and the preponderance of even patently poor teaching does not make matters worse, and that these factors do not prevent them completely from succeeding… why would the education of women, in literary and social studies, not bridge the gap that is usually found between the minds of men and women… (2013, 59–60)

The role of education in the *ancien régime* was a very contested issue.[12] The provision of elementary education was almost exclusively monopolized by religious orders of men during Gournay's lifetime, and those involved did not fail to realize the potentially subversive effect that education might have on obedience to churches and to the absolute power of the monarchy. It was even more obvious that the admission of women to education could have affected their acceptance of traditional subservient roles in the home and the churches. The dispute about whether women were 'capable' of study,

[12] See Phillips (1997, ch. 3).

therefore, merely masked the underlying concern about the redistribution of power that would result if, as expected, they proved their opponents wrong. Accordingly, women's access to education became central to the arguments proposed by many subsequent authors, including Anna Maria van Schurman and André Rivet.

8.3 Women's Education: Van Schurman

Opponents of women's education in France offered at least three reasons for claiming that study or learning was inappropriate for women generally and especially for Christian women. The most common reason focused on the term 'woman' and argued that *women* lacked the innate capacities or social conditions that are required for study. For example, they suffered from a lack of intelligence (if that term is used to denote a capacity to understand the subject matter of studies), or a lack of motivation, or a lack of other prerequisites (such as free time) for study. The second and equally prevalent reason given, especially among strict Calvinists, concentrated on the term 'Christian' and argued that it was inappropriate for a *Christian* woman to engage in studies. Finally, there was a third type of objection, which was invoked by the Calvinist theologian André Rivet (1595–1651), to the effect that it was a waste of resources and irrational for women to undertake expensive and difficult studies as long as they were excluded from the public offices or ecclesiastical functions for which such studies were exclusively designed. That was a simple and alluring Aristotelian argument: if some activity is intended to achieve a particular end, it is irrational to embark on the means while knowing that the end is incapable of realization.

Anna Maria van Schurman (1607–78) addressed this issue in a short philosophical essay that she published in 1641, under the title: *A Dissertation on the Natural Capacity of Women for Study and Learning* (Van Schurman, 1641). Before its official publication in Latin, however, Van Schurman sent a draft to Rivet and then corresponded with him, between 1637 and 1640, about the validity of her arguments and their relevance for a Christian woman. These letters, in which the main theses of the draft *Dissertation* were discussed, were subsequently translated from Latin to French and published in Paris as *A Celebrated Question: Is it Necessary or not that Girls be Educated* (Van Schurman, 1646).

Van Schurman's question, 'is the study of letters appropriate for a Christian woman?', faced the same challenge as Gournay's thesis about equality—to identify a reliable foundation from which to argue for a positive answer. She approached this issue initially by qualifying her thesis, and thereby avoided many trivial objections that were answered readily. For example, she was not arguing, as Lucrezia Marinella had done, that women were generally superior to men (Marinella, 1999). She replied to Rivet's misunderstanding of the scope of her thesis: 'I seem to have supported uncritically an invidious and empty claim about the superiority of our sex in comparison with yours', although she was obviously not claiming that 'women are more suited to study than

men' (2013, 106–7). She was arguing instead for the equality of men and women, and she explicitly associated her thesis with that of Gournay, with the qualification: 'I would not dare, nor do I wish, to approve it [i.e., Gournay's thesis in the *Equality of Men and Women*] fully in every respect' (2013, 107).

Secondly, Van Schurman was not claiming that all women were equally competent to engage in higher studies, or that all women enjoyed the family circumstances and financial resources necessary for such study. At the outset of the *Dissertation* she clarified that her thesis applied to women only in the same general way that equivalent claims applied to men. Accordingly, she argued that study would be appropriate only for those women who had a minimum natural capacity for study. Those who were exceptionally unintelligent (as were at least some men) could therefore not constitute counter-examples to the thesis. Likewise, any advanced study presupposed that the person undertaking the study had acquired an elementary education at home or from a tutor (as Van Schurman herself had done),[13] and that the prospective student had enough time at their disposal—free from burdensome work at home, on a farm, etc.—to engage in study. Finally, in relation to the most contested term in her thesis, Van Schurman wrote simply: 'when I say "a Christian woman", I mean someone who both professes to be a Christian and is actually such in practice' (2013, 79).

Since all the Christian sects that were relevant to this dispute accepted the same canonical books of the New Testament as divine revelation and as binding on the conscience of believers, it was a commonplace for participants in the debate (as in Gournay's *Equality*) to quote Scripture in support of their disparate opinions. Such appeals to the authority of the Bible, however, were effective only among those who shared the same understanding of those texts and of the authority, or lack of authority, of different churches to provide authoritative interpretations of them. Van Schurman's argument was therefore likely to persuade only those who shared her belief in the Bible's divine source and her Calvinist understanding of biblical interpretation.

There was also a second and potentially more far-reaching objection from any form of religious fundamentalism that denied the significance of all studies, for men or women, and that attributed such transcendent importance to religious faith and practice that all earthly activities, including study, were viewed as completely insignificant. This kind of anti-intellectualism found its most famous expression in *The Imitation of Christ* by Thomas à Kempis, who claimed that 'a humble rustic that serves God is better than a proud philosopher who, neglecting the good life, contemplates the courses of the stars' (1627, 22). The choice of epithets here—where the rustic is humble and the philosopher proud—assumed a false disjunction, but it represented a widely shared distrust of intellectual inquiries.

[13] As noted in Chapter 1, note 15, girls were admitted to elementary education in *petites écoles* that were operated by Huguenots, often in the same class as boys and without distinction of religious affiliation, but they were not permitted to continue their education at the more advanced level of colleges or academies.

In later life, Van Schurman endorsed the same pessimistic evaluation of learning as à Kempis when she wrote her autobiography, in which she reflected on the arguments of the *Dissertation* thirty-two years after their original publication:

> I believed at that time that I ought to learn everything that I could know to flee from ignorance and, indeed, I invoked there the words of the Philosopher: '*in order to escape from ignorance*' . . . Nonetheless, it is clear from what I wrote how far my thoughts had strayed from the warning of our Saviour, that 'one thing is necessary' . . . My own conviction now, however, is that the slightest experience of God's love can give us a truer and deeper knowledge of sacred scripture than the most comprehensive science of that sacred language itself. I also think the same judgement should be made about all the other sciences. (2013, 115, 117)

But this retrospective devaluation of study failed to acknowledge the validity of her earlier reply to Rivet, in March 1638, when he objected as follows to a draft version of the *Dissertation*.

> The magnificent works of God, about which the Psalmist writes, may be celebrated by everyone, although only a few people know in detail about the rotation of the heavens, the relative positions of the planets, the influence of the stars, and similar phenomena. Thus it often happens that those who are considered to be most knowledgeable about such things are seen to turn away from God and to attribute everything to nature rather than to God. In contrast, those who rely on simple observation are over-awed and celebrate the wonderful works of God; they are completely satisfied with their author, while the very learned tire their brains vainly in such things and, after lengthy disquisitions, are left to dine on fresh air. (2013, 106)

All objections along these lines, whether inspired by à Kempis or articulated by Rivet, missed the point. If learning were redundant or harmful to a genuinely Christian life, then that would apply equally to men and women. Rivet was a professor of theology at Leiden, and he was certainly not arguing that his life's work was meaningless; he was trying to defend the claim that theological studies were appropriate for men but not for women. It was impossible to defend that thesis simply by contrasting the simple faith of rustics with the potentially misleading learning of scholars. The radical choice recommended by Thomas à Kempis applied equally to men and women. Van Schurman's original reasoning in the *Dissertation* was therefore correct; even if one agreed that higher studies are not necessary for Christians to achieve salvation, that would not justify a gender-specific version of that conclusion that applied only to women.

In response, Rivet reverted to incidental comments in letters written by prominent leaders of the early Church, which reflected the inferior roles of women in their homes or in church assemblies during the first century of the Christian era. Rivet cited Saint Paul's injunction against women teaching or having authority over men, and Saint Peter's allusion to women as 'the weaker vessel' (I Tim. 2:11–15; I Peter 3:7). Such selective quotations failed to address the question that was notoriously disputed among biblical scholars: did the Bible enjoin the social distinctions to which it alluded as if they were divinely established, or did it merely reflect the customs and social arrangements

of the period in which Christian leaders wrote letters to outlying Christian churches in the Roman empire?

Those who were inspired by Jansenist and radical Calvinist views about the irrelevance of study for a genuine Christian life, therefore, had to choose within a range of implausible alternatives, since they all accepted the authority of the New Testament as their primary source of orthodox doctrine. One option was to claim that Christians were able to understand the Scriptures without knowing the languages in which they were written. Since that was impossible, believers who could not read at all—or who could not read Hebrew or Greek—had to devolve responsibility for interpreting the Bible to (a) competent scholars or (b) members of a central teaching authority and, in each case, they had to accept passively what they were taught. The Council of Trent forcefully endorsed option (b), but that was completely unacceptable to Rivet and Van Schurman, both of whom believed that individual Christians should read the Bible and guide their lives accordingly. The only remaining alternative, then, for reformed Christians was to distinguish between those who were sufficiently educated in biblical languages to understand the Scriptures and those (the majority of Christians) who had to rely on others to specify the content of their religious faith.

That invited the question whether there was any biblical basis for making a distinction between those who could and those who could not read the Bible along gendered lines. Van Schurman rejected the suggestion that Christians and, in particular women, should blindly or uncritically follow the biblical interpretations of others. The reason was obvious. Most Christian churches of the period classified at least some of the doctrinal teachings of other churches as heretical, and taught that those who adopted a heresy (knowingly or otherwise) were destined for eternal damnation. Therefore, unless one were to choose arbitrarily any religion that one encountered and to follow it uncritically, Christians (at least those who were capable of benefiting from study) needed appropriate learning to identify and avoid heresy. Van Schurman supported that rationale for study in the tenth argument of the *Dissertation*:

> Whatever protects us against heresies and uncovers their traps is appropriate for a Christian woman. But the sciences…etc. Therefore…The justification of the major premise is obvious, since no Christian should neglect their duty in this common danger. The minor premise is proved because a more sound philosophy is like a breastplate and (if I may use the words of Clement of Alexandria) it is like the fence of the Lord's vineyard or of the Saviour's teachings; or—to use a simile that pleased Basil the Great—when combined with the gospel, it resembles leaves that provide an ornament and protection for their own fruit. Spurious or corrupt reason, by which heresies are best supported, is certainly refuted more easily by using right reason. (2013, 86–7)

This is confirmed by her fourteenth argument, to the effect that ignorance is 'a blindness and mental darkness' that is conducive to vice and, therefore, is inappropriate for a Christian woman (2013, 88).

Those, like Rivet, who opposed women's access to education argued incoherently that all Christians were morally bound to avoid heresy, but that most Christians should

be denied the only means by which they could distinguish between heresy and orthodox religious doctrine. They then relied on custom to assign women exclusively to the latter category. Of course, they might have avoided incoherence temporarily by invoking divine predestination, so that the theological ignorance in which many people (and all women) would compromise their eternal salvation would also result from God's intentions. The Calvinist theory of predestination, however, was designed to protect the absolute freedom by which God grants grace to those who are saved, and it presupposed that mere human beings could never know God's mind. To convert that theory of grace into a rationale for women's ignorance, therefore, would involve an incoherent and gendered version of predestination, which was defended by male theologians who claimed officially not to know the mind of God nor who was or was not predestined to salvation.

In relation to the second issue addressed by Van Schurman—the natural capacity of women to undertake studies—the *Dissertation* offered many reasons, in the form of syllogisms, for the thesis that 'women are endowed by nature with the principles of all arts and sciences or with a capacity to acquire them' (2013, 82), together with the author's replies to various objections. If such arguments and objections were to avoid an infinite regress, they had to begin with propositions that were beyond dispute or, if one aimed merely to refute opponents, with premises that were accepted by opponents. Van Schurman adopted both alternatives and, in doing so, addressed the issue of whether women's nature is inferior to that of men.

Van Schurman's fundamental argument was that women have the same natural capacities that men require for study. This was implied by the commonplace assumption that had also been used by Gournay, viz., women have the same form as men, if 'form' is understood as scholastic philosophers (including Calvinist theologians) used it. The conclusion was based on correlating empirical evidence with the scholastic axiom that 'acts cannot occur without the corresponding principles' (2013, 82). Since at least some women had succeeded in studying as successfully as some men, their *nature* must be such that it is capable in principle of those results.

Despite the spectacular learning of Van Schurman, however, which included knowledge of Hebrew, Greek, and Latin, it was evident to all who engaged in this controversy that there were very few learned women in the seventeenth century. Many women could not read or write even in their vernacular.[14] This uncontested evidence was exploited by opponents of women's equality to argue that, in general, women lacked the natural ability to engage in study. This clearly begged the question about the provision of education to girls or women. To test the comparative natural abilities of men and women, it would have been necessary to provide them both with similar educational opportunities and then test if they were equally successful. Van Schurman had emphasized at the very beginning of the *Dissertation* that she was not claiming that all

[14] Illiteracy was not confined to women. According to Ariès (1986, 76), eighty-six per cent of brides and seventy-one per cent of grooms in France could not even sign their wedding contracts a century later.

women were suited to higher studies, no more than all men. Her thesis, rather, was that there was no basis for a gender-based distinction between the capacities of women and men to engage in higher studies, and that the disputed issue of women's native ability could be decided only if they enjoyed the same educational opportunities as men.

Rivet grudgingly acknowledged the logic of that argument, but he then claimed that Van Schurman's thesis, although it was true, was inapplicable unless suitable academies for women's education were available.

> You yourself would readily admit that they [young women] could not all be self-taught, or that they would not all have parents who would arrange for them in their homes the kind of education that you happened to enjoy. Nor would it be appropriate for them to attend schools for males, integrated with the boys. (2013, 105)

The same counter-argument could have been made with equal validity about men, by substituting the word 'men' for 'women', so that not all men could be self-taught, etc.

At this point, Rivet changed direction to argue that the only objective of study was to prepare students for specific offices or employments in which educated men engage when they complete their schooling. For example, someone who studied geometry might become an artillery officer, or those who studied law might work as tax officials to implement royal decrees effectively in a population that was very reluctantly tax-compliant. The traditional exclusion of women from all such offices, including all priestly or preaching offices in the Christian churches, thus gave Rivet the opportunity to argue as follows:

> Now since it is undisputed that the female sex is not suited for political or ecclesiastical offices, and especially for teaching publicly, why would young women labour to acquire learning that is designed for those objectives from which they are excluded, unless perhaps you make an exception for a few who, in some nations, are allowed to succeed to the throne when male heirs are unavailable? 'But I suffer not a woman to teach' (says the Apostle), 'nor to usurp authority over the man, but to be in silence' (I Tim. 2:12). If women are bound by this, then it is particularly appropriate that young women not be involved in it. It follows that they do not need the specific learning that is concerned with speaking well, if you consider how that learning is used… (2013, 103–4)

This was another transparent case of begging the question. Rivet had assumed (i) that the custom of excluding women from public or ecclesiastical offices was warranted, and (ii) that all studies were justified only by a utilitarian objective of gaining subsequent employment. Van Schurman had to consider how best to reply diplomatically to such a patently infirm argument.

She conceded that, in order to respect custom, men might continue to assume exclusive responsibility for preaching within the reformed churches. However, even such a division of duties within Calvinism failed to address two fundamental issues. One was that the exclusion of women from study breached the laws of equity:

> But we who seek the voice of reason rather than of received custom do not accept this Lesbian rule. By what law, I ask, did this fall to our lot: by divine law or human law? They will never

prove that these restrictions, by which we are certainly forced into line, are determined by fate or prescribed *by God*. (2013, 97)

Van Schurman seemed willing to respect the customs of the society and period in which she lived, but she refused to accept them as if they were God's law. There was no divine authority for excluding women from studies that prepared young men for offices in the church or the state.

Accordingly, at the beginning of the *Dissertation*, she listed the studies that are appropriate for young women: grammar, logic, rhetoric, physics, metaphysics, history, and knowledge of languages, especially the languages in which the Bible was written. Her only reservation applied to studies that were specifically oriented to public offices from which women were excluded. However, while accepting that customary exclusion, she defended the appropriateness for women of at least a 'theoretical' knowledge of those disciplines:

I do not recommend as strongly those studies [for women] that pertain to the practice of law, military affairs, or the art of public speaking in a temple, court, or academy, because they are less appropriate or necessary. However, we do not concede at all that a woman should be excluded from a scholastic or, as it is called, a theoretical knowledge of those things, especially the very noble discipline of politics. (2013, 81)

The thesis of the *Dissertation*, therefore, was not that some kind of limited curriculum of studies should be established for young women, but that all studies were equally appropriate for men and women, even if some were less highly recommended as long as the custom prevailed of excluding women from certain public offices.

For that reason women should not be excluded from theological studies that trained men for reserved ecclesiastical offices. Van Schurman's opponents' conclusion failed to address the challenge of the argument already discussed above, that an enforced ignorance deprived women of the ability to distinguish between heresy and the genuine doctrine of the gospels and, even for those who belonged to the 'true church', it also failed to provide any plausible connection between acting morally and being able to distinguish good from evil:

For, I ask, would it not be temerity to wish to build the whole economy of moral virtues on ignorance and commonly held opinions?… there is nothing more useful for a young woman, and nothing more necessary, than to distinguish between right and wrong, between what is harmless and harmful, between the appropriate and the inappropriate. (2013, 100)

This reflects Gournay's rebuke to those who believed that 'in order to be chaste, a woman should not be educated'. If women were not to be misguided by heretical preachers or to confuse vice and virtue, they should not be prevented from informing themselves as best they could, by studying, about the most plausible guides to good living.

Van Schurman offered a third reason for defending women's right to have access to all studies, by quoting an Aristotelian principle that appeared famously in the opening

line of the *Metaphysics*: 'All human beings by nature desire to know' (980a22). She thereby explicitly rejected Rivet's utilitarian argument that study was merely a means to an end:

> There are others who seem not to acknowledge that study has any objective other than riches or empty fame, or as training for service in some public office, which is a *fundamental* and rather shameful *falsehood*, as if it were a complete waste of time to philosophize '*in order to escape from ignorance*' (2013, 89–90).

In contrast, many of the arguments deployed in the *Dissertation* assumed that study was one way for human beings to fulfil their natural potential and to realize objectives that were intrinsic to the activity of study itself. According to Aristotle, there were moral and intellectual virtues, both of which could be acquired only by appropriate training. Study was the recognized practice or training that was necessary to acquire the latter. 'Virtue, then, is of two kinds: that of the intellect and that of character. Intellectual virtue owes its origin and development mainly to teaching, for which reason its attainment requires experience and time' (Aristotle 2014: 1103a14–16). Thus study perfects the mind and fills it with a natural pleasure that is worthy of human beings. Study also makes it possible for women to achieve other extrinsic objectives apart from offices or employments; for example, it provides a way of knowing God through his creation, and of avoiding idleness and its alleged temptations to vice.[15]

Van Schurman's defence of the educational rights of women was articulated within a scholastic framework, in which participants were expected to develop their theses in the form of syllogisms and to appeal to recognized authorities as foundations on which to rest their claims. In that sense, she was simply arguing in accordance with the standards of her time, and on the basis of principles that were accepted by her critics within the Reformed Church. She was applying to women the views about study that were widely attributed to the most famous Greek philosophers, on whom the theologians of all the Christian churches relied to justify their prolix and misogynist objections to women's study: that the acquisition of knowledge cultivates one of the most characteristic features of human nature, and that it is impossible to live a good life or a Christian life without having the knowledge required to identify either one. While her arguments could not have convinced those who shared none of the assumptions on which they were based—such as the value of a Christian way of life, or the ancient Greeks' philosophical framework within which most theologians of her period argued—it was an effective response to those within the Reformed Church who relied merely on tradition to exclude women from education and the civil and ecclesiastical offices for which education was a necessary training.

To address a wider audience of opponents, therefore, it would have been necessary to step outside those shared assumptions and to challenge the authority both of the

[15] These arguments were listed respectively as argument 8, 13, 9, and 4 in Van Schurman's *Dissertation* (2013, 86, 88, 83).

Bible and ancient authors to decide the factual and moral issues associated with women's equality.

8.4 Poulain de la Barre

In the 'Afterward' to *The Equality of the Sexes*, Poulain identified accurately and replied to the two kinds of authority to which opponents of women's equality appealed: the authority of famous male authors, and the authority of the Bible.

> As regards the first of these, I think they may be answered satisfactorily by saying that I recognize no authority here apart from the authority of reason and sound judgement. As regards Scripture, it is not in any way contrary to the aim of this work, on condition that one understands each of them correctly…Scripture does not say a single word about inequality; and since its only function is to provide a rule of conduct for people in accordance with the ideas of justice that it advocates, it allows everyone the freedom to judge as they wish about the natural and true state of things. (2013, 200)

Thus, whereas Gournay and Van Schurman had accepted biblical authority on this issue but disputed interpretations of texts that appeared to discriminate against women, Poulain completely rejected Scripture as irrelevant for deciding whether men and women are equal. He consciously appealed to the precedent of Galileo (3.3 above) by describing those who objected to heliocentrism as trusting their naïve observations: 'Apart from a few scholars, everyone thinks that it is indubitable that the Sun moves around the Earth, despite the fact that what we observe in the revolution of the days and the years leads those who examine it to believe that it is the Earth that moves around the Sun' (2013, 122). Thus, despite the notoriety of Galileo's condemnation, Poulain supported his contention that the Scriptures do not teach astronomy, but he still ventured (as Galileo had done) into the minefield of discussing how to discover the limited doctrinal content of the Bible.

The *Equality of the Sexes* suggested that it is no more difficult to interpret the New Testament than to read 'the Greek and Latin authors' (2013, 166), and it was therefore open to anyone who can read those languages to contribute to that hermeneutic task. Poulain's theory of interpretation coincided with a view expressed by liberal Calvinist theologians of the period, according to which one should not interpret a biblical passage in such a way that it is inconsistent with what is naturally known (3.5 above). Thus reason and sensory observation set a priori limits for what can be believed by faith, as Poulain claimed in his *Conversations concerning the Education of Ladies*.[16]

The equality or otherwise of the sexes was a question that, according to Poulain, fell within the scope of human reason and empirical investigation, and it was therefore

[16] 'For how could one persuade an idolater or a Mohammedan of the falsity of their religion and the truth of our own without reasoning with them to show them that one is contrary to reason and the other is consistent with it' (2011, 214).

both irrelevant and inappropriate to invoke Scripture to resolve it. 'For whatever falls within the scope of reason should be known by reason' (2013, 204). In contrast with Gournay's apparent reservations about the capacity of reason to 'prove' her conclusion, he was confident that reason was competent to address questions about sexual equality, and he turned to Descartes for guidance at that point by borrowing some features of the latter's theory of knowledge and account of explanation. One might even say that it was Descartes's apparent dismissal of observational evidence (or what others accepted uncritically as such), and the Cartesian challenge to the traditional role of authorities in philosophy, that made it possible for Poulain to see beyond appearances and to challenge the customary inferences that resulted from what was almost universally accepted as an established 'fact' about women.

Scholastics often appealed to the Latin axiom, *ab esse ad posse valet illatio*: from the fact that something is the case it is valid to conclude that it is possible. It seems, in retrospect, as if many opponents of women's education and equality relied on a logically invalid counterpart of that scholastic axiom: *ab non-esse ad non-posse valet illatio*, or it is valid to argue from what is not the case to what is not possible. Since this logical mistake does not currently have a special name, it might be called the 'incapacity fallacy'. It was evidently true that, in the seventeenth century, most women were not educated and, consequently, were unable to engage in philosophical and theological discussions (as were most men). This fact about women attracted a facile explanation: that it was women's 'nature' that made them incompetent. That conclusion, however, involved an invalid inference that relied on the same logical structure as the incapacity fallacy. It was illogical to argue from the fact that some people did not do something to the conclusion that they were incapable of doing so. In addition to being fallacious, such an inference was also subject to a number of specifically Cartesian objections, which were adapted from (a) Descartes's distrust of what are apparently 'facts'; (b) his rejection of scholastic explanations; and (c) his novel account of how realities may be known, with a qualified certainty, by constructing hypotheses about how they appear to us in observations.

Descartes had often emphasized a distinction between the spontaneous judgements we tend to make on the basis of observation—which he called prejudices—and the reflective judgements we ought to make about matters that fall within the scope of our intellectual and sensory capacities. Poulain adopted the same distinction; he defined prejudices as 'judgments that are made about things without examining them' (2013, 119). He also added a rather prescient anticipation of what later became a familiar theme in Marx: that the interests of those who hold certain beliefs may provide a stronger motivation for their convictions than the evidence that supports them objectively.

> I realize that this discourse will make many people unhappy, and that those whose interests . . . are opposed to what is defended here will not miss an opportunity to criticize it . . . If one examines the foundations of all these various beliefs [about women], one finds that they are

based only on self-interest or custom . . . Thus one should be suspicious of everything that men have said about women because they are both judges and litigants. (2013, 121, 123, 151)[17]

Opponents might have replied that men's interests just happened to coincide with a 'fact' that was independently confirmed by the evidence, and that it was premature to offer an ideological explanation of a belief before it was shown to be false. To answer that objection, Poulain had to provide the evidence on which his thesis about equality could be tested. He did so by using a distinction between appearance and reality that was borrowed from Descartes and from contemporary Cartesians in Paris, such as Jacques Rohault.[18]

One of the fundamental principles of Descartes's natural philosophy was that the real world may not, in fact, be as it appears to us in sensory perceptions (4.2 above). This reservation was not inspired by scepticism, but by the opposite—by an extraordinary (some might say unjustified) confidence in our ability to speculate, beyond appearances, about the inner structure of natural phenomena. Descartes introduced this distinction in the first sentence of the *World*, and applied the same rule in the *Principles of Philosophy*, when he advised against making hasty, mistaken judgements based on perceptions of either external or internal sensations (such as pain): 'all of us have judged from our childhood that all the things that we sense are things existing outside our minds, and are exactly similar to our sensations, that is, to the perceptions that we have of them' (VIII–1, 32: M 138). If we cannot rely on sensory observations as accurate reflections of the real world, what other means are available?

Descartes claimed that we acquire a more accurate understanding of the actual world by constructing hypothetical explanations of the ways in which it appears in our sensations than by projecting onto natural phenomena the qualitative experiences that those phenomena evoke in our minds. For example, we cannot understand the nature of light simply by examining our sensations of light, nor can we determine whether the Sun or the Earth moves by merely observing how they appear to move. In general, we have no 'argument that guarantees' that 'the ideas we have in our thought are completely similar to the objects from which they originate' (XI 3: D 85). Poulain repeated almost verbatim the same caution: 'One would be mistaken to accept the way things occur in people's minds as the way they occur in nature, because the former does not always give us an idea of the latter' (2011, 216). The only way to know the objective realities that cause our perceptions was, in Poulain's words, by hypothesizing 'what particular internal or external disposition of each object produces the thoughts or sensations that we have of it' (2013, 155).

Poulain then applied this general principle about appearance and reality to the *perception* of a reality that was both natural and social, i.e., the relative equality or otherwise

[17] Cf. 'Women depend on men only because of the laws that men have made for their own particular advantage', *De l'excellence des hommes* (2011, 314).

[18] Poulain's spokesman in the *Conversations concerning the Education of Ladies* mentions his attendance at a Cartesian conference, which may have been one of those arranged regularly by Rohault (Poulain de la Barre 2011, 281).

of men and women in early modern French society. He adopted almost casually an attitude of counterfactual confidence that allowed him to see beyond appearances and to claim that, contrary to the almost universal belief of people, men and women are naturally equal. Rather than accept at face value the apparent evidence of his senses, the testimony of accepted authorities, the custom of centuries (or the alleged confirmation of the Scriptures), he introduced what he called an 'historical hypothesis' to explain why women occupied the inferior roles in society to which they had become accustomed, with the phrase: 'it happened more or less as follows' (2013, 127).

He then presented a speculative reconstruction of how, at the beginning of history, men were superior to women in physical strength; how societies were formed; how they went to war and relied on the strength of male warriors; how women were limited to roles of child-rearing and how, over centuries, the prejudice about women's inequality corresponded to what people actually observed in almost every society. He concluded that, since the inferior condition of women was readily intelligible in light of such an historical hypothesis, there was no more reason to claim that women are naturally inferior to men than to assume that sensations of light resemble the reality of which they are sensations.

This thesis to the effect that we know the real world by constructing hypothetical explanations of it was complemented by a well-known Cartesian rejection of an entrenched style of explanation that was popular among scholastics. Poulain hinted at how to construct genuine explanations of natural phenomena in his discussion of liquidity, which was consistent with the type of explanation proposed by contemporary Cartesian natural philosophers. The Cartesians argued that one makes no progress in explaining any phenomenon simply by postulating a 'form' or 'nature' that corresponds to each observed quality. When applied to the question about women's equality, therefore, one explains nothing by inferring a so-called 'nature of women' from the manner in which women lived and behaved in the seventeenth century (or previously). What people observed in that period was the end-result of generations of custom, social influence, and a lack of education. Any inference to an underlying nature, therefore, would require peeling away the effects of custom and education and hypothesizing an underlying reality that may be significantly different from how it appeared. According to Poulain, it was necessary to distinguish between women's true nature, as it must have been at Creation, and the condition in which women's nature appeared after centuries of entrenched custom. We cannot 'make a judgement about corrupted nature unless we know perfectly what nature is in ourselves or, to express it more clearly, what nature has given us and what we have acquired from education, example, and custom' (2011, 258).

In addition to these general Cartesian reservations about the (lack of) explanatory value in all scholastic forms or natures, there was another reason not to rely on the theory of the soul as a distinct substance. Descartes argued consistently that we have no direct knowledge of substances, and that our knowledge of them is limited to knowledge of their properties. Thus if we notice certain features of women's condition

that require an explanation, we make no progress by talking about a corresponding woman's 'nature' (understood as a substance), about which nothing is known apart from the very features that it is meant to explain.

The novel focus on the role of social factors in the acquisition and consolidation of beliefs also reflected the discussion in Descartes's *Passions of the Soul*, according to which 'physical' explanations are only one part of a comprehensive account of the emotional responses that people exhibit. People's experiences, education, and beliefs are equally significant in explaining their 'passions'. The same applied a fortiori to the attitudes inherent in knowledge-claims about the condition of women in the seventeenth century; attitudes to women were partly determined by the education, beliefs, and interests of those whose attitudes they were.

One of the corollaries of Poulain's historical hypothesis was that women's bodies are not relevantly different from those of men with respect to most of the social functions from which they were excluded. He claimed that, with the obvious exception of bodily functions that are specific to generation, 'men and women are similar in almost everything that pertains to the external and internal constitution of the body' (2013, 184). He also claimed that the human head is the most important bodily organ for learning, and that women's brains work in the same way as those of men (2013, 158, 180). Evidently, there are differences between some men and some women in bodily strength but, for the same reasons as those offered by Gournay and Van Schurman, Poulain rejected physical strength as a criterion for deciding if men are superior to women.[19] All such superficial differences between the sexes were secondary if used to justify the exclusion of women from offices or social functions that were reserved to men.

It is also true that, like many other feminists of the period, Poulain claimed that 'the mind has no sex' and therefore, if there were any natural inequalities between men and women, they could not result from the sexuality of the minds with which women were endowed. However, Poulain was not assuming a radical dualism of mind and body, or that the functioning of human minds is unaffected by the body. That kind of metaphysical dualism was far removed from the view endorsed by Descartes in his later work, and from the mind–body interaction defended by the Cartesians whom Poulain was likely to have heard in Paris. The union of the body and soul and their reciprocal interdependence was a more fundamental datum of human experience than the speculative isolation of the soul as a distinct scholastic substance. Besides, if the soul were as separable from the body as scholastics had assumed, it would undermine one of the primary supports of Poulain's whole thesis, namely the extent to which custom and habit, and the 'passion' of self-interest, condition the false beliefs that were held about sexual

[19] While admitting, in general, a difference in physical strength, Poulain pointed out the obvious conclusion: 'sheer physical strength should not be used to distinguish between human beings; otherwise brute animals would be superior to humans and, among men, those who are more robust would be superior' (2013, 185). See also *De l'excellence des hommes*: 'Experience shows us . . . that those who are stronger do not always possess more intelligence, natural genius, or skill' (2011, 319).

equality. If gender is understood as a cultural construct, as the sum total of the ways in which men or women are thought of and treated in a given culture, then the primary issue to be addressed in discussing gender equality was neither their souls (understood as separate, immaterial substances) nor their sexual differences, but the entrenched misogynist traditions that invented spurious philosophical explanations of inequalities that resulted merely from custom rather than from nature.

In the course of developing the conclusions that may be validly drawn from the universality of women's subjection, Poulain came close to articulating the principle with which David Hume is usually credited: that it is invalid to draw a moral conclusion from premises that are exclusively non-normative. Poulain observed that 'if some practice is well established, then we think that it must be right' (2013, 125). When *A Physical and Moral Discourse* was translated into English as *The Woman as Good as the Man; or, The Equality of Both Sexes* in 1677, it was subsequently plagiarized by an anonymous author called 'Sophia' as *Woman Not Inferior to Man; or, A Short and Modest Vindication of the Natural Rights of the FAIR-SEX to a Perfect Equality of Power, Dignity, and Esteem, with the Men* (1739). This anonymous plagiarist made explicit the logical gap between a description of women's social condition and a justification of their condition that relied simply on the fact that it obtained:

> It is enough for the *Men* to find a thing establish'd to make them believe it well grounded. In all countries we are seen in subjection and absolute dependence on the *Men*, without being admitted to the advantages of sciences, or the opportunity of exerting our capacity in a public station. Hence the *Men*, according to their usual talent of arguing from seemings, conclude that we ought to be so. But supposing it to be true, that *Women* had ever been excluded from *public offices*, is it therefore necessarily true that they ought to be so? God has always been more or less resisted by ungrateful man, a fine conclusion it wou'd be then to infer, that therefore he ought to be so. (1739, 35)

Sophia's identification of this fallacy, which she called a 'paralogism' in the 1751 edition of her work, anticipated by one year the more well-known version of the same logical advice in Hume's *Treatise of Human Nature* (2007: I, 302).

In a word, Poulain challenged the perception of women's condition in society as if it revealed natural rather than social 'facts' about them. He rejected as invalid and as an example of a spontaneous mistaken judgement the inference that women are incapable of being other than they appeared to be. Furthermore, he rejected as non-explanatory the claim that one can understand women's condition in terms of their 'nature': 'Lawyers . . . attributed to nature a distinction that results only from custom . . . They would be hard pressed if they were required to explain intelligibly what they mean by "nature" in this context' (2013, 152). Finally, he was reluctant to base the equality thesis on a radical substance dualism that presupposes a sexless soul that is infused mysteriously into each body by God. That merely shifts the discussion from a woman's soul to her body and, for example, to the assumption that women's brains inhibit the operation of souls that would otherwise be as rational and competent as those of men.

Malebranche, as a committed Cartesian dualist, adopted that conclusion without supporting empirical evidence.

> The delicacy of the brain fibers is one of the principal causes impeding our efforts to apply ourselves to discovering truths that are slightly hidden… This delicacy of the brain fibers is usually found in women… normally they [women] are incapable of penetrating to truths that are slightly difficult to discover. Everything abstract is incomprehensible to them… They consider only the surface of things… a trifle is enough to distract them, the slightest cry frightens them, the least motion fascinates them. (1997, 130)[20]

Having rejected scholastic theories of mind and scholastic types of explanation, Poulain offered instead an historical hypothesis about how women's inferior social condition developed over time. That hypothesis was simple to test, at least in principle: it would require a large-scale social experiment over a long period of time, in which women would be given access to all the same educational opportunities as men. A credible decision about women's natural ability could be made only when that experiment was completed.

Poulain's more famous contemporary, Molière, had written a number of comedies, in the 1660s and 1670s, in which he ridiculed the aspirations of contemporary women to enjoy the same education as men. The most explicit of these plays was *Les femmes savantes*, which was first produced in Paris in May 1672 as Poulain was writing his book on equality, and in which Molière mocked Philaminte's suggestion that women could make scientific discoveries. He even attributed to her the apparently absurd claim that she had seen men on the moon (1992, 889–90). Molière caricatured such women as rejecting marriage and traditional female roles, and aspiring instead to join the academies from which they were excluded.[21] Molière's farcical stage representations of the educational ambitions of 'polite' ladies merely exploited a growing awareness that women's access to education was central to discussions of equality.

Poulain shared with Descartes and with Montaigne a negative assessment of the formal education that was then provided in exclusively male schools and colleges, in which students were trained to memorize and repeat in Latin the contents of a scholastic curriculum. Descartes concluded that, on balance, women were lucky not to have had their minds contaminated by scholastic learning; they could therefore approach questions with an open mind and could understand novel discoveries more easily than men. Poulain endorsed the same assessment:

> one would consider women lucky rather than despise them because they are not involved in the sciences. For if, on the one hand, they are thereby deprived of the opportunity to develop

[20] Malebranche acknowledged that there are exceptions to the general rule: 'if it is certain that this delicacy of the brain fibers is the principal cause of all these effects, it is not at all certain that it is found in all women… In short, when we attribute certain defects to a sex, to certain ages, to certain stations, we mean only that it is ordinarily true, always assuming there is no general rule without exceptions' (1997, 130).

[21] Another character in the same play says: '*Il n'est pas bien honnête, et pour des causes,/Qu'une femme étudie et sache tant de choses*' (1992, 571–2).

their talents and their characteristic advantages, on the other hand they have no opportunity to ruin or lose them. Despite this privation, they develop intellectually, in virtue and in grace, as they get older. (2013, 134)

Poulain described his own studies as having equipped him merely to speak in Latin about matters that he did not genuinely understand. His spokesman in the *Conversations* reported regretfully: 'having studied from the age of nine to the age of twenty with much dedication and success as a student, I had hardly made any more progress than if I had never begun, and I had to begin all over again' (2011, 281). That suggested a need to modify radically the kind of education that was then available to men and, once modified, to offer the same revised curriculum to women.

It is not surprising that, on this issue, Poulain borrowed and adapted various proposals about education that were current in Cartesian circles. He endorsed Descartes's suggestion that there is only one science and one method, which is applied to different subjects. Secondly, the logic of his proposed social experiment was that women must be admitted to exactly the same educational opportunities as men, and that there was no subject from which they should be barred. There should be no distinct type of women's education or women's subjects, as recommended by Jean Luis Vives (1493–1540) in the sixteenth century or by Poulain's contemporary, François Fénelon (1651–1715).[22] Poulain recommended exactly the same studies and the same authors for men and women. These included the *Port-Royal Logic*, Descartes's *Discourse on Method*, *Meditations,* and his *Treatise on Man*; Cordemoy's *Discourse on the Distinction and Union of the Soul and the Body*; La Forge's *Treatise on the Human Mind*, and Rohault's *Treatise on Physics*.

He also acknowledged that education is not confined to reading books, and that women should use their good judgement or common sense to evaluate and judge all matters for themselves. 'Examine everything, make judgements about everything, reason about everything' (2011, 273). He even offered the same advice that Descartes had implemented consistently in his own life, namely not to read many books. With that in mind, if women wished to choose one philosopher among those who were accessible in French, he concluded that 'I cannot think of one that is more appropriate for you than Descartes' (2011, 100). However, Poulain was quick to emphasize that he did 'not claim that Descartes is infallible or that everything he claimed is true and unproblematic, or that one should follow him blindly' (2011, 278). All the cautions mentioned about other authors applied equally to Descartes. By using their 'common sense', women could study all the same subjects as men. Among these, one or two subjects were less highly recommended, especially rhetoric. This reflected the negative assessment found in *Equality*, where rhetoric was described as a kind of 'verbal optics' (2013, 148) that could be used to deceive listeners, like the tricks of a magician.

[22] See Vives (2000) and Fénelon (1966).

Of course, for exactly the same reasons as those mentioned by Van Schurman, Poulain did not claim that all women are equally capable of benefiting from education, no more than all men.

> I do not claim that they [women] are all suited to the sciences and to public office, nor that each woman is capable of doing everything. No one claims that about men either. I ask only that, considering the two sexes in general, we recognize that there is as much aptitude in one as in the other. (2013, 132)

The proposal, then, was to admit women on an equal basis with men to all kinds of study, and to allow them to compete for admission to all offices and professions.

The admission of women to most professions, including that of a professor or judge, was a revolutionary thesis in the seventeenth century. However, Poulain also included on his list of professions that of a pastor or minister in a church, which continues to appear revolutionary in many religious traditions. This, then, is possibly the most relevant and realistic example today of Poulain's underlying hypothesis—that the reason for an exclusion that was based only on custom became transformed into something else, such as 'natural' inferiority or 'God's command'.

> The profession that comes closest to that of a teacher is being a pastor or minister in the church, and nothing other than custom can be shown to exclude women from this. They have a mind just like ours, which is capable of knowing and loving God, and thus of leading others to know and love Him. They share the same faith as us; the gospel and its promises are addressed equally to them…If men got used to seeing women presiding in church, they would be no more disturbed by it than women are when they see men in the same office. (2013, 175)

That might seem to run counter to various sayings of Saint Paul: that wives should submit to their husbands (Col. 3:18), that the head of the woman is the man and the head of Christ is God (I Cor 11:3), or that women should submit to their husbands (Eph. 5:22). Since Poulain continued to be a Christian after publishing his feminist tracts (though in a different church), he had to reconcile his proposals about women in the church with apparently contrary biblical passages. However, he had no difficulty in showing that the New Testament did not teach that women should submit to men 'because of their sex or of divine law' and there was 'not a word about inequality and natural dependence' in Paul's injunctions (2011, 315). Paul was not *recommending* the subjection of women, no more than he was endorsing slavery for those who happened to be slaves when he wrote to the Colossians: 'Servants, obey in all things your masters according to the flesh; not with eyeservice, as menpleasers; but in singleness of heart, fearing God' (Col. 3:22). His message was rather that, even those who happen to be subject to others—such as women or slaves in first-century society—should still be Christian in whatever civil or social status they occupied. For, as Paul also declared, 'there is neither male nor female, neither Jew, Gentile nor slave in relation to God' (Col. 3:11).

One final objection to this version of the equality thesis was that it was based on speculation, and that it lacked the certainty that opponents claimed for what they

observed. Poulain had two replies to this: one, that we know very few things with certainty. He complimented one of the interlocutors, in *Conversations on the Education of Ladies*, with the acknowledgement: 'I am pleased that you are convinced that you know nothing with certainty, except that you have a firm and unwavering desire to know things in the best way possible' (2011, 211). The second response was that the belief held by opponents of women's equality was equally speculative: it involved an invalid inference from the cultural conditions to which women were historically subject to a conclusion about their underlying 'nature'. The only way to decide rationally between the rival hypotheses was by conducting the educational and social experiment mentioned above. The evidence to date from that experiment suggests that Poulain, rather than his critics, was correct.

8.5 Conclusion: Equality and Difference

Gournay, Van Schurman, and Poulain argued for the equality of men and women, although they stopped short of defining 'equality' explicitly. Nonetheless, there were enough clues in their supporting arguments, despite the diversity of the authorities on which they relied, to identify some common features in their understanding of equality. None of these authors denied the obvious truth that all human beings are not equal if one compares features that can most easily be measured, such as their size, strength, intelligence, virtue, or linguistic abilities. Likewise, there are as many differences, observable or otherwise, among women as there are among men. These concessions anticipated an acknowledged conclusion of recent discussions of equality: that the plausibility of any thesis about human equality seems (at least initially) to vary inversely with the specificity with which it is expressed. Undisputed statements of equality at a very abstract level—such as, that all human beings are equally human—seem to be trivial or uninformative, while those that focus on specific features seem to be disconfirmed by counterexamples.

This led many later proponents of equality to argue for equality of opportunity, which is a moral or political claim to the effect that all persons should enjoy equal access to certain human goods. Even that proposal, however, assumes that the people in question already share factual characteristics in virtue of which they ought to enjoy whatever equal opportunities are claimed for them. The seventeenth-century proponents of gender equality struggled with these inter-related dimensions of the equality thesis: (1) a factual claim about human beings that is difficult to articulate satisfactorily and seems to vary between apparent metaphysical triviality and empirical falsification, and (2) a moral or political claim about how things ought to be, which assumes a satisfactory resolution of the challenge identified in (1).

In respect of the factual claim, all three proponents of equality argued for the equality of men and women as human persons. Gournay and Van Schurman adopted the metaphysical account of people that was inherited from Aristotle—about the human mind or reason as a substantial form that defines what it means to be human—and

challenged opponents to say how women's minds could be less immaterial or less immortal than those of men. For Gournay, this metaphysical equality was also confirmed by the Genesis account of creation; God created a single species called 'man', and commentaries on Genesis by Fathers of the Church confirmed that the term 'man' applied equally to male and female people.

Nonetheless, this metaphysical equality, if focused exclusively on souls or minds, was compatible with a general claim about the inferiority of women's bodies or even with Aristotle's infamous suggestion that women were defective men. For example, if women's brains functioned less well than those of men (as Malebranche assumed with no supporting evidence) then the innate abilities that result from a human soul could be frustrated in their operation by the 'natural' infirmities of female bodies. The relevant biological sciences that could have addressed that factual question were not adequately developed, in the early modern period, to answer it either as opponents or proponents of equality wished. Nonetheless, all the available evidence confirmed that some women were as capable, in every respect, as some men, and that the observable differences between men and women corresponded in degree and frequency to observable differences between men. Therefore the mere assertion of the inferiority of women's bodies was, as Poulain argued, a projection onto nature of a difference that probably resulted merely from custom.

This helped to refocus the factual equality claim on capacities and dispositions rather than actual achievements, and on moral or intellectual features of human beings rather than their bodily characteristics. In particular, the protagonists for equality argued that women have the same capacity for moral judgement as men, and therefore an equal capacity for the acquisition and practice of moral virtues. The Christian tradition to which all three authors belonged had almost universally preached that women could excel in virtue. Even the ancient pagans who provided the philosophical basis for Christian culture acknowledged that women were as capable as men of intellectual and moral virtues. For example, Plutarch had helped to identify which human features were relevant to the equality debate. He argued mischievously, in *Isis and Osiris*, that 'having a beard and wearing a coarse cloak does not make philosophers' (1936, 353), and he reminded readers in *The Education of Children* that, if physical strength were used as a criterion of comparison, elephants and lions would be superior to human beings.

> Strength is much admired, but it falls an easy prey to disease and old age. And, in general, if anybody prides himself wholly upon the strength of his body, let him know that he is sadly mistaken in judgement. For how small is man's strength compared with the power of other living creatures! I mean, for instance, elephants and bulls or lions. But learning, of all things in this world, is alone immortal and divine. Two elements in man's nature are supreme over all—mind and reason. (1927, 5 D–E)

Thus the factual egalitarian thesis was inspired by centuries of Greek culture and Christian writing, which argued that the worth of human beings should not be

measured by wealth, beauty, health, or physical strength, and that the merit and dignity of people derive from characteristically human features that are not shared with other animals.

As Poulain emphasized, these human capacities were not features merely of an incorporeal, sexless soul. They were features of an embodied self that relied necessarily on appropriate conditions to facilitate their development and expression. For the same reason, Gournay remarked ironically in the opening sentences of *The Ladies' Complaint* that it was not enough to congratulate women on their natural capacities if they were denied all relevant opportunities for developing them. Accordingly, the factual claim about women's natural abilities supported a moral and political demand for equality of opportunity. In fact, the factual question about capacities could not be decided without first implementing equality of opportunity. For that reason, proponents of gender equality in the seventeenth century drew attention to the circularity of excluding women from offices and professions because they were inadequately educated to engage in them, and of excluding them from the relevant education because they were traditionally barred from the corresponding professions or offices in churches and in civil society. This was summarized pithily in the anonymously plagiarized English edition of Poulain's *Physical and Moral Discourse*: 'Why is *learning* useless to us? Because we have no share in public offices. And why have we no share in public offices? Because we have no *learning*' (1739, 27).

They also drew attention—especially Van Schurman—to the fundamental principle that supports equality of opportunity, viz., a concept of fairness or distributive justice in the allocation of scarce resources when there is not an adequate supply to satisfy all those who desire them. When some group or class of people is treated differently to another, it is a basic principle of equity that one must justify the differential treatment by reference to a general principle. The major innovation of the seventeenth-century feminists was to add *gender* to the list of irrelevant criteria that fail to justify a differential treatment of individuals. They did that by challenging those who defended inequality to explain the rationality of their principles, and by transferring the burden of proof onto those who proposed a differential treatment of women. Thus, if women are systematically excluded from access to education, one can avoid the charge of irrationality or unfairness only by giving a plausible reason for their exclusion. Gournay and Poulain realized that there was no reason for excluding women from education, except to preserve the privileges and power of men. Evidently, that is not a reason that could ever appear plausible or acceptable to women, no more than the financial gain of slave-owners could persuade slaves to accept their condition voluntarily. Since that underlying reason could not be articulated without self-refutation, proponents of inequality appealed to custom or to traditional interpretations of the Bible (which also relied on custom). That manoeuvre involved converting an arbitrary human arrangement into an equally arbitrary but allegedly incontestable decision by God.

As in other more recent expressions of racial or religious equality, the very challenge to traditional orthodoxies about women's equality involved a significant element of

consciousness-raising. In one sense, it was not the responsibility of the early proponents of gender equality, as Gournay had assumed, to 'prove' some thesis that straddled the boundaries of the moral, political, and factual. It was enough to demand a justification for the differential treatment of women and to examine critically the reasons given for excluding women from offices and positions that were reserved for men. That challenge, once articulated, acquired a perennial relevance. It was then a matter of asking, not why women cannot do something, but why they should be prevented from trying to do it. Egalitarianism thus becomes a moral and political demand for equality of access to opportunities for developing capacities that, until proved otherwise, must be assumed to be equal between men and women, even if they are randomly distributed unequally among individuals of both genders.

Afterword

The most significant development in French philosophy during the century after 1572 occurred in natural philosophy, in which scholastic forms and qualities were replaced by explanations in terms of the properties of pieces of matter in motion. I have avoided calling this radically novel approach 'mechanical', although a watch or similar machines were often proposed as models for bodies (such as the body of an animal) that are composed of disparate parts that are physically connected. One reason for avoiding that description is that it is too restrictive. In the case of a watch, one can observe its moving parts and the connections between them, so that one's understanding of the motions of the watch's hands follows directly from an inspection and initial understanding of the mechanism that causes them. The defining feature of the new perspective in natural philosophy was precisely that the explanatory entities to which one appealed and the connections between them were *postulated* rather than observed, and that the warrant for postulating them (and describing their features and relations in a given way) was that they provided an otherwise unavailable explanation of a natural phenomenon. Such explanations might preferably be called structural rather than mechanical (McMullin, 1978), because the observable properties of a natural phenomenon are explained by reference to an underlying structure of constituent parts or properties and the relations between them.

It probably took another two centuries for the significance of this change to be adequately appreciated and for it to be recognized as legitimate, when scientists began to speculate about theoretical entities at the sub-atomic level. By that time it had become apparent that the warrant for such theoretical mico-entities derived from a novel kind of inference. It was no longer a question of induction or deduction; Peirce named this novel kind of inference 'retroduction', because it involved inferring the probability of an hypothesis from its explanatory success. This meant that one argued 'backwards' from what is known by observation or experiment about some natural phenomenon to the conclusion that the otherwise unknown and unobserved postulated entities or properties are an appropriate explanation. The obvious uncertainty of retroduction—because alternative hypotheses might equally well explain the same natural phenomenon—had encouraged many natural philosophers during the intervening period to seek ways in which it might be converted to more familiar and less uncertain kinds of inference. While they flirted with that option, however, they embarked enthusiastically on the slippery slope of hypothetical structural explanations of a wide range of

phenomena, which ranged from the solar system to the pumping action of the human heart or the optical images on the retina that made visual perception possible.

This 'hypothetical turn' changed natural philosophy so fundamentally that it was impossible subsequently to engage in what we now call scientific research without assuming the freedom to postulate an explanation of any given *explanandum*, to test it experimentally when possible, and to integrate one's tentative assumptions within the supporting web of beliefs that is deemed current knowledge. It was not necessary that the postulated structure of particles and their relations should operate mechanically, and in many cases a dynamics of independently moving particles was required.

In the decades after 1650 Cartesian natural philosophers in France exploited fully the epistemic latitude that they had inherited from Descartes. Once natural philosophers were emancipated from the restrictive categories of substances and forms, they were free to imagine properties of matter at an unobservable micro-level that could, at least in principle, explain the observed properties of the natural phenomena. There was hardly any such phenomenon for which they did not offer a hypothetical explanation and their haste in doing so was seldom restrained by an equally urgent need to provide plausible confirmations. This novel approach to explanation was also accompanied by a very significant expansion of the range of *explananda* to which it might be applied. When Descartes reflected on the outer limits of the universe, he concluded that the universe must be indefinitely large because it would be inconceivable for it to have a spatial limit beyond which there would be some kind of vacuum or empty space. The limited, earth-centered universe of the Bible was replaced by an infinite universe, in which the Earth was simply one planet among potentially millions more.

Newton's success in the *Principia* (1687) in revising Descartes's three laws of motion—by exploiting the concept of force and defining it as a function of the acceleration of a body in absolute space, thus providing a mathematical expression of the laws of motion that coincided with experience—eventually displaced Cartesian natural philosophy in France as the accepted paradigm in physics (Newton, 1999). The change of allegiance from one set of hypotheses (Cartesian) to another (Newtonian) took time. Voltaire was still complaining about the reluctance of French natural philosophers to endorse Newtonianism in the 1760s, despite his own contribution and that of Mme du Châtelet to persuading French readers of the merits of Newton's system.

The gradual adoption of a hypothetical natural philosophy eventually undermined the apparent plausibility of scepticism as a general attitude to knowledge claims. Scepticism had thrived on an unwarranted ideal of true, justified beliefs that were guaranteed to be certain—an ideal that was recommended without being realized by Aristotle or was assumed to have been accessible in texts that were believed to have been divinely revealed. A more modest and realistic epistemic ideal of beliefs that are warranted by empirical evidence provided a new criterion by which to distinguish

between claims that are more or less probable. The ideal of a 'demonstrated' natural philosophy was gradually abandoned as unachievable.

The fate of the Huguenot minority in France in the eighteenth century confirmed that political philosophy was even less open to change than natural philosophy in the kingdom of Louis XIV and that of his successor, Louis XV. Louis XIV revoked the Edict of Nantes in 1685 and thereby withdrew the limited range of freedoms that the Reformed Church had enjoyed since 1598. The close liaison between the dominant Catholic Church and the crown during the decades after 1685, and the systematic exclusion of non-Catholics from public offices, led to the emigration of many Huguenots and the loss of religious and civil liberties for those who remained in France. When a Huguenot shopkeeper, Jean Calas, was accused of murdering one of his sons who had committed suicide—allegedly because he was about to convert to Catholicism—his barbaric torture and execution in Toulouse in 1762 inspired Voltaire to publish the *Treatise on Toleration* in 1763 (Voltaire, 1999). The political philosophy of the *ancien régime* and the lack of religious freedom remained in place, however, until the revolution.

Scholasticism survived the conceptual and cultural transformation of philosophy that inevitably followed the Scientific Revolution in France. The theology of the Christian churches had become so dependent on the categories in which it had been expressed since the time of the Church Fathers that the philosophical tools used by Augustine and Aquinas assumed the same status as the religious beliefs on which they offered commentaries. For example, since Trent had expressed its theology of the Eucharist officially in the language of transubstantiation, it seemed impossible to surrender the concept of a substance many centuries after it had become redundant. As long as Christians read the teachings of Trent ahistorically, therefore, they felt constrained to believe that bread had both a chemical composition and a mysteriously replaceable substance. The revolution in natural philosophy in the seventeenth century thus gave rise, in the subsequent history of philosophy in France, to two parallel traditions, in one of which the explanatory resources of matter and form, substance, and the whole panoply of scholastic entities vied for adoption as a philosophy of nature that was philosophically superior and more foundational than the so-called positive sciences.

The most obvious sign of this twin approach was in philosophy of mind, because of the acknowledged, unsuccessful attempt to provide a plausible, comprehensive explanation of characteristic features of human intelligence and sensory experience. Although it was evident since the seventeenth century that a 'thinking faculty' is no more explanatory than Molière's 'dormitive power', the lack of progress in explaining sensation and thought created a space in which a faculty that was defined by its non-empirical properties provided a residual credibility for the conviction that scholastic natural philosophy retained some explanatory value. The unexplained 'mental' powers of human beings were thus transformed into an inexplicable form.

The philosophical changes that occurred in France and elsewhere in Europe in the early modern period confirmed two conclusions: that it would be impossible to revert to substances and forms as explanatory postulates, and that it would be equally unwarranted to believe that their replacements were not also subject to subsequent possible rejection. Further conceptual change and theory replacement are unavoidable possible developments in the future. The mere fact that we have become used to describing natural phenomena or human experiences in the familiar categories of what is now our 'ordinary language' provides no guarantee for the ontological assumptions on which that language rests. We owe that discovery to those who contributed to the transformative impact of early modern philosophy.

Appendix: Brief Biographies

Extensive biographical information on many of the authors mentioned in the body of the text is available in Foisneau (2008).

Amyraut, Moyse: Born in Bourgueil, near Saumur in the Loire valley, in 1596. Amyraut is thought to have studied law at Poitiers before turning to theology at the Calvinist Academy at Saumur, under the supervision of John Cameron, whose works he later edited for publication. Amyraut devoted most of his intellectual energy to developing a theology that acknowledged Calvin's fundamental principle that the salvation of each individual depended on their faith alone while acknowledging their natural freedom to accept or reject divine grace. He addressed the theology of the Eucharist in *Elévation de la foy* (1641) and defended Huguenots against the charge of disloyalty to the crown in *Apologie* (1647). He also published a six-volume summary of Christian ethics, *La Morale chrétienne* (1652–60) and died at Saumur in 1664.

Asseline, Eustace: Usually known by the Latin version of his adopted religious name, Eustachius à Sancto Paulo, he was born in Paris in 1575, and educated at the Sorbonne. He joined a reformed community of Cistercians, the Feuillants, and took vows there in 1606. Most famous for his textbook of scholastic philosophy, the *Summa philosophiae quadripartita*, which was first published in 1609 and reprinted twenty times before 1649. Devoted most of his life to religious reforms, during which he collaborated with St Francis de Sales and supported members of the Arnauld family. Died in Paris, 1640.

Bèze (Beza), Théodore de: Born in Vézelay, Burgundy, in 1519, he studied law and literature at Orléans and Paris. Having converted to the Reformed Church in 1548, he moved to Geneva where he became a professor of theology and succeeded Calvin as head of the church (1563). Bèze acted as advisor to the Huguenot leader, Gaspard de Coligny, and published widely on religious topics. He supported Calvin's denunciation of Servetus, wrote Calvin's biography, and published *The Right of Magistrates* in 1574. Bèze died at Geneva in 1605.

Bodin, Jean: Born near Angers in 1529 or 1530, he studied briefly as a Carmelite friar in Paris, and then at the law faculty at Toulouse. Bodin's career was dedicated entirely to diplomatic and administrative offices, many of short duration. As the most famous critic of monarchomach defences of the right to rebel, he supported educational and religious uniformity to underpin political cohesion in a commonwealth. These included his address to the people of Toulouse (1559), his most famous work, *Six Books concerning a Commonwealth* (1576), and his posthumously published *Colloquium* (completed in 1593). His own religious views, though originally Catholic, were probably a form of deism. Bodin died at Laon in 1596.

Charron, Pierre: Born in Paris in1541, he initially studied law at Orléans and Bourges; having practised law briefly, he studied theology at Montpellier and became a lecturer and preacher for the remainder of his life. He was a close friend of Montaigne and adopted the style of the *Essays* in his most famous work, *Concerning Wisdom* (1601). *Wisdom* was even more popular than Montaigne's *Essays* in the early seventeenth century; thirty-nine editions appeared between 1618 and 1634. He also published a prolix defence of Catholicism in *The Three Truths* (1594), and died in Paris in 1603.

Cureau de la Chambre, Marin: Born in 1594 or 1595 near Le Mans, he qualified as a physician and became a doctor to Chancellor Séguier and Louis XIV. He was appointed to the *Académie française* in 1635 and to the *Académie des sciences* in 1666. He was associated with the Habert de Montmor circle, where he met many of the leading intellectuals of the period. Cureau de la Chambre's publications attempted to integrate medical knowledge with philosophy and theology; hence his study of the role of passions in human conduct, which he published in a multi-volume *Caractères des Passions*, and of animals' knowledge in *Traité de la connoissance des animaux* (1648). He died in Paris, in November 1669.

Descartes, René: Descartes was born in a village called La Haye (which is now called Descartes) in the Loire valley in 1596. He studied at the Jesuit college of La Flèche and subsequently earned a degree in law at Poitiers. Following extensive travels and a brief military career, he settled in the United Provinces in 1629–49, and spent the last months of his life in Sweden at the court of Queen Christina. Descartes lived alone and moved his residence frequently. His extensive correspondence provides helpful clarifications of his published views. He died in Stockholm in February 1650 and was buried there temporarily, but his remains were returned to Paris in 1667.

Du Bosc, Jacques: Born in Normandy, little is known of Du Bosc's education and early life. He became a friar of the reformed Franciscan order, the Cordelliers, and published extensively about the role of women in society and against Jansenism. Du Bosc dedicated the first two parts of *Honnête Femme* to the Duchess d'Aiguillon (Richelieu's niece), and Part III to Louis XIII's sister, Christine of France. He dedicated *La Femme Héroique* (1645) to Anne of Austria. He died in 1664 (?).

Du Plessis-Mornay, Philippe: Born in Buhy, Normandy, in 1549, and educated in law at the University of Heidelberg and in the humanities at Padua. His family converted to the Reformed Church in 1559. Mornay escaped to England during the St Bartholomew massacre, and subsequently became a leader of the Huguenot cause in France. Acted as counsellor to the future Henri IV, but left his post when the king became a Catholic. Moved to Saumur, where he founded the Saumur Academy in 1604 and was governor there until 1621. Following the failed revolt of Huguenots at Saumur, he retired to Deux-Sèvres, where he died in 1623.

Du Vair, Guillaume: Born in Paris in 1556, became a lawyer, and was involved most of his life in political affairs involving the League and the defence of the monarchy. Supported the claim to the throne of Henry of Navarre, on condition that he convert to Catholicism; and when he did so in 1583, Du Vair was rewarded for his support by appointment to a number of public offices, including master of petitions in 1594, first president of the Parliament of Aix, and eventually Bishop of Lisieux in 1617. He died in Tonnies, 1621, while accompanying a royal expedition against Protestant forces. Known for his Christian stoicism and his political oratory.

Gassendi (Gassend), Pierre: Known as 'Gassendi' since the seventeenth century (since the Latin version of his name was 'Gassendus', the 'works of Gassendus' would be '*Opera Gassendi*'). He was born in Champtercier (Provence) in 1592, and studied classics in Digne, 1599–1607. He subsequently studied philosophy in Aix, and was awarded a doctorate in theology at Avignon in 1614. Taught philosophy at Aix from 1617 until 1623, when the Jesuits terminated his contract; he was ordained a priest and became a canon of Digne Cathedral in 1623. Gassendi relied on patrons to support him for much of his life, first Peiresc until 1637, and then Louis le Valois, the governor of Provence until 1653. He lived in Paris 1641 to 1645, when he was appointed to a chair in mathematics at the Collège Royal. He returned to Provence until 1653, and spent his last two years in the home of Habert de Montmor, where he died in 1655.

Gournay, Marie le Jars de: Born in Paris, in 1568, the eldest of six children, and lived intermittently at the family estate at Gournay-sur-Aronde, in Picardie. She had no formal education, although she taught herself Latin and some Greek before reading Montaigne's *Essays* in 1584. Following her father's death in 1577, the family estate was inherited by Gournay's younger brother, and Marie le Jars spent the rest of her life in Paris. She decided not to marry, and devoted her life to editing Montaigne's *Essays* and publishing her own writings. She died in Paris, 1645.

Hotman, François: Born in Paris, in 1524, studied law at Orleans and lectured briefly in law at Paris. Converted to the Reformed Church and moved to Geneva in 1548, where he became Calvin's secretary. He subsequently was professor of law at Strasbourg, at Valence, and at Bourges, but fled to Geneva again after the St Bartholomew massacre in 1572. He was professor of law at Geneva, where he published *Francogallia* in 1573, and died at Basel in 1589.

La Forge, Louis de: Born in La Flèche, November 1632, and probably studied in the Jesuit college there before studying medicine. He settled in Saumur, where professors at the prominent Calvinist academy participated in friendly discussions with the Oratorians (at Notre Dame des Ardilliers) in the same town. The editor of Descartes's posthumous works, Claude Clerselier, invited la Forge to provide some of the illustrations for the first edition of Descartes's *Treatise on Man* (1664), for which he also wrote extensive explanatory notes. His major work, *A Treatise on the Human Mind*, was published shortly before he died in 1666.

La Mothe le Vayer, François de: Born in Paris in 1588, and lived there throughout his life. Published two sets of dialogues in 1630 and 1631, with a false author's name and incorrect dates of publication. Served as Richelieu's secretary for ten years, during which he published more orthodox views, including his critique of Jansenism, *The Virtues of Pagans*. Elected to the *Académie Française* in 1639, and served as tutor to the future Louis XIV from 1652. He died in Paris in 1672.

Mersenne, Marin: Born near Oizé in the Haut-Maine in 1588, he studied humanities and philosophy at La Flèche and then theology at the Sorbonne. He joined the religious order of the Minims in 1611, and was ordained a priest the following year. Settled in the Minim friary at Place Royale, Paris, in 1619, and remained there until his death in 1648. Mersenne quickly became the focus of a group of intellectuals that included Peiresc, Gassendi, Mydorge, Roberval, Étienne Pascal, and Hobbes; he also engaged in a very extensive correspondence with others who were based outside Paris, including Fermat, Gassendi, and Descartes. He died in Paris in 1648.

Montaigne, Michel de: Michel Eyquem was born in 1533, in his family's chateau de Montaigne, east of Bordeaux. He was educated initially at home, by tutors who spoke to him only in Latin, and later at the Collège de Guyenne in Bordeaux. He retired from public office at the age of thirty-eight, and settled into the tower library at Montaigne (which survives). Elected mayor of Bordeaux in 1581, he served in that office until 1585. His *Essais* were published in 1580, and revised and expanded in subsequent editions. Montaigne died at his family home in 1592. The final posthumous edition of the *Essais* (1595) was prepared by Marie de Gournay.

Pascal, Blaise: Born in Clermont-Ferrand, 19 June 1623, and educated at home by his father, the mathematician Étienne Pascal. Lived in Paris 1631–40, then in Rouen until 1647, when he returned to Paris. He lived briefly in Clermont-Ferrand during the Fronde in 1649. Published short essays on the vacuum in 1647/8, and issued the *Provincial Letters* anonymously in 1656–7. Became one of the *solitaires* at Port-Royal des Champs in 1655 and began to compose notes for a defence of his religious beliefs, which appeared posthumously as the *Pensées* in 1670. Died in Paris 19 August 1662, and was buried in the church of Saint-Étienne-du-Mont.

Poulain de la Barre, François: Born in Paris (1647), completed a conventional college education in 1663, and studied theology until 1666. Poulain published three books on the equality of the sexes: *A Physical and Moral Discourse on the Equality of the Sexes, which shows that it is important to rid oneself of prejudices* (1673); *The Education of Ladies to guide the mind in the sciences and in morals* (1674); and *The Excellence of Men, against the equality of the sexes* (1675). Poulain was ordained a priest in 1679 and served as a curate in a small village parish (La Flamengrie) in northern France, before abandoning his priestly career and becoming a Calvinist. Poulain emigrated to Geneva in 1688, where he married and spent the remainder of his life. He seems to have earned a living initially by teaching French to the citizens of his newly adopted city, and published a small monograph on the French language to assist his pupils. He died in Geneva, in 1723.

Sanches, Francisco: Born in Túy, Spain, in 1551, from where his family emigrated to Bordeaux in 1562. Studied at the Collège de Guyenne, Bordeaux, and subsequently studied medicine in Rome and Montpellier. Sanches moved to the University of Toulouse in 1575 and spent the rest of his career there, initially as a professor of philosophy (until 1612), and then as professor of medicine. He published *Quod nihil scitur* in Lyon in 1581.

Schurman, Anna Maria van: Born into a strict Calvinist family in Germany in 1607 (where her family had moved temporarily during the Spanish occupation), she returned to the United Provinces in 1615 and lived most of her adult life next to the cathedral in Utrecht. She was educated at home, and was allowed attend lectures at the University of Utrecht without matriculating, while hidden behind a curtain. Famous for her knowledge of many languages, including ancient Greek and Hebrew, she disputed with André Rivet about the education of women and subsequently published her thesis, the *Dissertation*, in 1641. She joined the religious friends of Jean de Labadie in 1666, and spent the rest of her days in that church. Van Schurman published her autobiography in Latin in 1673, and died in 1678.

Seyssel, Claude de: Born in Savoy, in south-eastern France, *c.*1450, he studied civil law at the University of Turin and at Pavia. In 1486 he was conferred with a doctorate at Turin and taught for approximately ten years. He returned to France in 1492 to serve under Charles VIII. Having served in a number of political appointments in Italy and Savoy, he was ordained priest in 1508, and subsequently became archbishop of Marseille and later of Turin. Seyssel drafted *Monarchy* in 1515, and published it in 1519. He died in May 1520 and was buried in Turin.

Silhon, Jean de: Born in Sos, Gascony, in 1594 or 1596. He appears not to have attended a university. Helped draft the statutes of the *Académie française*, to which he was elected in 1634, and was appointed secretary to Richelieu in 1642. Despite being ill and inactive during the period 1643–61, Silhon published a three-volume treatise on politics, *Le Ministre d'Etat, avec le Veritable Usage de la Politique Moderne*. He died in Paris, 1667.

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