Descartes

A Biography

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1

A Lawyer's Education

I have been nourished by books since I was a child.

(*Discourse on Method*, vi. 4)

BREAD and wine, and the seasonal changes that affect their production, were among the most familiar features of life in the Loire valley, in central France, in the sixteenth century. The appearance of the 'plague', although an infrequent event, was much more prominent in public consciousness. None of these realities was well understood. The range of grapes cultivated in this region was very extensive, and the wines produced were equally diverse. Growing grapes and producing wine relied on traditional techniques that had been passed on for generations. Those involved in viticulture could easily recognize a good season, with the right combination of spring rain and intense heat in midsummer, and they succeeded admirably without a scientific oenology. Likewise, the production of bread and other familiar foods did not presuppose biochemistry and any of its cognate sciences.

The plague, however, was a different story. In one province alone, in 1631, it killed 40,000 people.[1] No one understood what it was, how it arrived in a town, or why it eventually abated, although they noticed that it tended to vary in intensity with the seasons, being worst in summer. They also knew that it was likely to cause a very large number of painful deaths and that the best defence was to flee, preferably before the plague arrived in a town. Here was a natural phenomenon, then, that urgently required an explanation, with a view to providing a cure.

Bread and wine, of course, were not simply familiar foodstuffs that exemplified established French culinary traditions. They were also central to the Christian liturgical tradition that originated with the last supper of Christ. Their role in the Eucharistic service was one of the most

contentious issues among different Christian churches and it was best left to the theologians of each church, who expounded at length the meaning of the words attributed to Christ in the gospel account of the last supper: 'This is my body', 'This is my blood'.

While it may have been possible for aspiring philosophers in the early 1600s to avoid any mention of bread and wine or their liturgical uses, it was almost impossible to avoid all controversy. Cautious philosophers repeated the well-worn formulas of their own local churches, especially if they coincided with the official views of the kingdom in which they lived. Those who challenged the received theological wisdom of the church or kingdom often paid a heavy price. Giulio Cesare Vanini, a wandering priest-scholar, was accused of atheism and other crimes in Toulouse in 1618. Having been imprisoned for six months, he was condemned to have his tongue cut out by the public executioner, and then to be strangled and burned at the stake. The immediate and very public implementation of the *parlement*'s judgment was meant to discourage others from similar obstinacy.

Vanini was not unique. There were many examples of the barbaric penalties that were applied to those who expressed dissident views in the early seventeenth century. Giordano Bruno's public burning was even more notorious, while Tommaso Campanella, who avoided execution, spent the best part of twenty-five years in jail for similar offences, during some of which he was tortured. However, Galileo is probably the most famous example of ecclesiastical punishment in the early 1600s; his case will be discussed in more detail.[2] The extraordinary penalties often imposed on those who expressed heterodox views might have been enough to persuade any sensible scholar to remain within the boundaries of what was locally tolerated. In the Loire valley, however, it was not as easy to do this.

Although most of the king's subjects were Roman Catholic, a significant minority was Huguenot. This made is difficult for philosophers to avoid theological controversy, either with one's own church or with those of another denomination, unless they observed a selective silence about contentious issues. However, any genuine attempt to understand a phenomenon such as the plague encouraged adventurous minds to question the traditional learning of the schools that had failed so signally to provide satisfactory explanations of natural phenomena.[3] At the same time, every inquiring mind of the period, whether described as a natural philosopher, theologian, or astronomer, was acutely conscious of the penumbra of theological controversy within which they had to work, and of the

potentially lethal penalties that awaited those who strayed beyond the boundaries of orthodoxy that were locally enforced. This kind of censorship was not limited to any particular church or kingdom. Nonetheless, it was enforced more widely and more barbarously by the Catholic Church in all the kingdoms that fell within its ecclesiastical jurisdiction.

The penchant of the Catholic Church for condemning novel ideas was firmly and widely established when, on 20 November 1663, it forbade its members to read certain books by Descartes until they were corrected.[4] By this date, Descartes had been dead for thirteen years. The threat of such an unwelcome intervention from afar had been a constant source of concern for the French philosopher during the last seventeen years of his life, during which he tried as best he could to avoid this almost inevitable fate. However, when Rome eventually spoke, after his death, the effect was the opposite of what it hoped to achieve. As in the more famous case of Galileo, the church's condemnation provided a seal of recognition for the originality and pervasive influence of a style of philosophy that had by then acquired its own distinctive name as 'Cartesianism'. It was hardly worthwhile, even for an extremely censorious and interventionist church, to focus on the writings of someone whose ideas were likely to fade into a well-deserved oblivion. The problem with Cartesianism, even as early as 1663, was that it had become so widely known throughout Europe and so avidly adopted as a replacement for scholastic philosophy that it could no longer be ignored.

Here, then, was someone who presented himself as a loyal son of the Roman Catholic Church, and who succeeded throughout his life in at least avoiding public condemnation by his own church. In developing his ideas, he encountered more controversy that one might have expected, despite the extremely private and almost isolationist manner in which he lived his life. This life began in the comforting embrace of the Loire valley, and seemed destined by family expectations and education to lead to a secure, uncontentious career as a lawyer in the king's service. Instead, it culminated in the development of a new philosophy that eventually exceeded the most ambitious hopes of its author and, in the process, won the distinction of a censure from the Holy Office.

'Born in Touraine'

Catherine Descartes, the youngest daughter of Descartes' brother Pierre, constructed a rather poetic and fanciful summary of Descartes' origins

some years after his death, which was intended to link her famous uncle with her own family in Brittany. She claimed that he had been 'conceived among the Bretons, and born in Touraine.'[5] In fact, Descartes' connection with Brittany was very much a retrospective recovery by his family, which had removed from Touraine to the former duchy of Brittany after his birth.

René Descartes was born on 31 March 1596, the third surviving child of Joachim Descartes and Jeanne Brochard.[6] He was born into a bourgeois legal family that had begun to consolidate its social position by service to the French crown. The circumstances of his birth and early childhood seem to have made a deep and lasting impression on René. Within fourteen months of his birth, the young Descartes was effectively an orphan, due to his mother's death and his father's lengthy absences from home.

The Descartes family was originally from the Poitou region of France, where many of its members had held royal appointments as tax collectors or members of provincial *parlements*, and where the philosopher's parents had established their impressive home on the Grand'rue in central Châtellerault. However, Joachim Descartes had been appointed to a post as counsellor in the *parlement* of Brittany in 1585 and had taken up his post in February 1586.[7] Given its somewhat marginal status, the Brittany *parlement* met each year for only one three-month session, which was extended in 1600 to six months. Thus Descartes' father spent part of the year at home in Châtellerault and the remainder at Rennes, 260 kilometres away. Jeanne Brochard's confinement coincided with her husband's annual absence in Brittany. Accordingly, she went to stay with her own mother, Jeanne Sain, at the small town of La Haye, about 20 kilometres from her home. Descartes' grandmother Sain had been widowed since 1586, and she provided a welcome haven for her grandson's delivery. Fourteen months after René's birth, on 16 May 1597, Descartes' mother died, three days after the birth of her fifth child (who also died at birth).[8] She left behind a family of three young children: Pierre (age six), Jeanne (age four), and René (age one).

Descartes was evidently confused or not accurately informed by his family about the details of his mother's death, because he wrote to Princess Elizabeth almost fifty years later that his mother had died a few days after his own birth. 'My mother died a few days after my birth from a disease of the lung caused by distress. I inherited from her a dry cough and a pale complexion which stayed with me until I was more than twenty, so that all the doctors who saw me up to that time condemned me to die

young' (iv. 220–21). Immediately after his birth, baby René was entrusted to a nurse for breast-feeding, a practice that was customary at the time and was probably also required by his mother's relatively weak health. Thus, in his earliest years, the dominant people in his life were all women: his rather fragile mother, his maternal grandmother Sain, and his nurse. Descartes speculated much later in his career about the time at which first impressions are made on the mind of a young child, and he suggested that they begin when the child is still in the womb.[9] This claim may have been more a reflection on his earliest memories than the result of reliable medical research. His subsequent cool relationship with his father, Joachim, contributed to a retrospectively rosy picture of his infancy, marked for life by the influence of his mother and protected in the intimate family circle of his grandmother and nurse. Descartes never forgot his nurse and, even when dying, asked that she be included in his will.[10]

Descartes was baptized into the Catholic Church on 3 April 1596, at the nearby church of St. George in La Haye.[11] His father was still absent in Rennes, and his mother was presumably recovering from his delivery three days earlier; besides, it was not customary at the time for mothers to attend their children's baptism. The family was represented instead by three godparents, Jeanne Sain, Michel Ferrand, and René Brochard (who gave his Christian name to the young philosopher), as recorded in the baptismal entry:

> The same day was baptized René, the son of the nobleman Joachim Descartes, counsellor to the King in his *parlement* of Brittany and of Damoiselle Jeanne Brochard; his godparents were the noble Michel Ferrand, the King's counsellor and lieutenant general of Châtellerault, the noble René Brochard, the King's counsellor and judge magistrate at Poitiers, and Jeanne Proust, wife of Mr Sain, the King's controller of taxes for Châtellerault.

These godparents reflected very accurately the family's status and the expectations for the newly baptized infant. Anyone interested in predicting his future would have said that he was destined to become a Catholic lawyer in the service of the crown.

French society in the late sixteenth century was clearly and rather inflexibly stratified into three classes or estates: the nobility, the clergy, and the rest of the population. Evidently the vast majority of the population belonged to the so-called third estate, and the opportunities for social promotion between estates were very limited. However, there was significantly

more flexibility for upward mobility within the third estate, in which there was also an established hierarchy, in descending order, from (1) university graduates in law, medicine, theology, or the arts, to (2) lawyers, (3) tax-collectors, (4) lower justice officials, (5) merchants, (6) shopkeepers, and on through skilled craftsmen to the unemployed.[12] Even a hundred years after Descartes' birth, most of the French population were illiterate; as many as 86 percent of brides and 71 percent of grooms could not even sign their names on their marriage certificates.[13] Thus, for most people, the only hope of upward social mobility was by advancement within the third estate, for example, from being a mere merchant or tradesman to being a bourgeois gentleman. And the best way of realizing such ambitions was by acquiring an education and then purchasing or inheriting an administrative or legal position within a mushrooming royal civil service.

Those in higher offices claimed the title '*Monsieur*' and recognition as a squire or noble in a personal capacity. However, these were not genuine nobles, and they were despised by those who inherited traditional family titles.[14] This pattern of upward social mobility was so well established that Montaigne comments in his *Essays*: 'What is more uncouth than a nation where, by legal custom, the office of judge is openly venal and where verdicts are simply bought for cash? . . . where this trade is held in such high esteem that there is formed a fourth estate in the commonwealth, composed of men who deal in lawsuits, thus joining the three ancient estates, the Church, the Nobility and the People?'[15]

The original *parlement* of Paris was a relatively small group of special political and legal advisers to the king. Apart from offering advice, they were responsible for implementing royal decrees, overseeing the administration of justice, and for delivering final judgments on both civil and criminal questions within their own jurisdictions. There were also *parlements* in each of the provinces that had been fully integrated into the kingdom. However, even among *parlements* there was a hierarchy, with Paris being superior and closely associated with the crown. As France expanded and became more centralized, similar *parlements* were established in regions outside Paris. For example, the one in Brittany was established in 1554, and its members were appointed so that half of them were natives of Brittany and the remainder from outside the province, mostly from the centre of power at Paris.[16] This was a well-recognized method of providing some element of local autonomy while integrating such provinces more effectively into a kingdom whose continued unity remained insecure. Joachim

Descartes was among those who had been appointed from outside the region to help cement the relationship between Brittany and the crown.

However, the fundamental reason for multiplying these nominally royal appointments was the soaring demand for extra taxes to support the central administration in Paris. External wars, the suppression of internal challenges to the court's jurisdiction, and the constantly expanding demands of a highly centralizing system of government made ever-increasing demands on taxpayers. Royal appointments were effectively purchased, and they included an exemption from the extremely burdensome taxes that were levied on everyone else in the third estate.[17] Since the nobles and clergy were already exempt from taxes, there thus emerged a new bourgeois class of people who were exempt from taxes themselves while ensuring that all their social inferiors paid theirs. The range of royal officials who were involved in this complex administrative system included not only members of local *parlements*, but also various tax collectors and local police who were charged with enforcing their financial decisions.[18] In the period during which many of Descartes' immediate predecessors acquired their offices and titles, between approximately 1573 and 1604, the total number of royal offices in France increased significantly.[19] Although Descartes' paternal grandfather was a medical doctor, as was his paternal grandmother's father, Jean Ferrand I, most of his other ancestors were members of this newly emerging bourgeois class of tax collectors and lawyers that developed in sixteenth-century France. In particular, all three of his godparents were associated with this group of upwardly mobile legal office-holders.

Descartes' godmother at his baptism was Jeanne Proust, wife of Jean Sain, the comptroller of taxes at Châtellerault.[20] One of his godfathers was Michel Ferrand, his paternal great-uncle. He was brother of Claude Ferrand, the wife of Descartes' paternal grandfather, Pierre. Michel Ferrand was principal lawyer of the Châtellerault district at the time of Descartes' baptism. The third godparent was a son of Jeanne Sain and René Brochard I, and thus the maternal uncle of the philosopher. He also had a legal career, and became dean of the Présidial of Poitiers in 1621. With this symbolic representation at his baptism, the young Descartes might have been expected to follow the family tradition and become a lawyer. This is exactly what his older brother, Pierre, did. He became counsellor to the king in the *parlement* of Brittany in 1618, due to his father's influence; in the next generation, Pierre's son, Joachim, did likewise and followed his

father and paternal grandfather into the Brittany *parlement* in 1648. This association with the legal profession was not uniquely confined to direct lines of descent. It was also customary at the time for men in the royal service to marry the daughters of others who had achieved the same social status.

The legal symbolism of the three family witnesses at René's baptism was not the only implication of the simple religious ceremony held at La Haye on 3 April 1596. One of the most disputed questions addressed by the Council of Trent was the role of baptism in the justification of those who were believed to have been damned by Adam's sin.[21] The council taught authoritatively that each individual is born in a state of original sin, that this sinful condition is removed only by the grace of Christ, and that the sacrament of baptism is a necessary condition of justification. The council also decreed that the sacrament be administered by pouring water over the child's head while a validly ordained minister said the words: 'I baptize you in the name of the Father, the Son, and the Holy Spirit.'[22] Since René was only three days old when this ceremony was performed, he could hardly have consented to assuming the duties that he automatically acquired. From the perspective of the church, however, his consent was unnecessary. His godparents consented on his behalf to his becoming a member of the Catholic Church. He was henceforth obliged to live according to the church's teaching, to obey its rules, and to believe its dogmas.[23] If he were ever to leave the church, he would be deemed to have done so despite the divine grace with which he had been assisted since baptism. He could never simply become a nonbeliever. Any deviation from the path that had been set for his life would make him either a heretic (if he denied the church's theological teaching) or a sinner destined for eternal damnation (if he refused to obey its moral teaching).

Whether Descartes remained true to his baptismal obligations, or to the way in which the Catholic Church understood those obligations, remains to be seen. Many years later, when writing the *Discourse on Method* (1637), he reflected on the strategy he had adopted in attempting to rebuild all his knowledge on firm foundations. 'I devised a provisional morality that included only three or four maxims. . . . The first was 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 since my infancy. . . .' (vi. 22–3). The intolerance of religious dissent in the seventeenth century makes it difficult to assess the genuineness of such apparently simple expressions

of religious faith. At the time of his baptism, however, Descartes was destined by the rules of the Roman Catholic Church to be a compliant religious believer, and he seemed destined by his patrimony to become a lawyer.

René Descartes' father, Joachim, continued to divide his year between Rennes in Brittany and Châtellerault in Poitou for three years after his wife's death in 1597, and in 1600 he married Anne Morin de Chavagnes from Nantes. Anne Morin was the daughter of the First President of the provincial tax court.[24] Joachim and Anne had four children, including Joachim (who later acquired the same post as his father) and a daughter called Anne.[25] Descartes probably lived with his maternal grandmother for at least two years, or as long as his local nurse was feeding him, and he may have spent some time each year at his father's principal house in Châtellerault up to the age of four. But once his father moved permanently to Rennes in 1600, it is likely that Descartes remained with his brother and sister at his maternal grandmother's house, until her death in 1609 or 1610. He may have spent the holiday periods at the house of his godfather, Michel Ferrand, at Châtellerault, and he may have lived with his paternal grandmother, Claude Ferrand, who was the widow of Pierre Descartes, René's grandfather. While in the care of his two grandmothers, and in the company of his sister, Jeanne, Descartes acquired the elementary reading and writing skills that were normally learned at home, and thus began his preparation for formal schooling.

Even before attending school, however, he began to imbibe the social expectations of the class into which he had been born. Erasmus was the dominant exponent of Christian humanism in the sixteenth century and a master of expressing, in elegant, brief, Latin phrases, the social values of a pre-Reformation Europe. He had published a small booklet in 1530, which immediately became a best-seller and was translated into many European vernaculars. It appeared in English, in 1532, as *A Lytell Booke of Good Manners for Children*. Despite its relative brevity, Erasmus included detailed suggestions on how to eat and drink, how not to lick one's lips, what to wear, and how to conduct oneself in company, including a version of 'Little children should be seen and not heard.'[26] In the course of writing this primer in civility for young Christian children, Erasmus also captured in a pithy phrase the educational ambitions that motivated the hopes and expectations of the Descartes family: 'All those are to be considered noble who cultivate their minds by liberal studies.'[27] In fact, according to

Erasmus, those who become ennobled by education are more genuinely deserving of that status than those who merely inherit their titles from their ancestors.

One might think of the young Descartes, then, as enjoying a very peaceful life in a small village atmosphere, on the banks of the river Creuse, in the company of his sister, Jeanne (who was three years older), and his brother, Pierre (who was five years his senior). It may have been during these formative years that he became attached to the cross-eyed girl whom he writes about many years later. 'I loved a girl of my own age who had a slight squint. As a result, the impression made on my brain, when I looked at her cross eyes, became so linked with the impression also made there and which aroused the passion of love that, for a long time afterwards, when I saw someone with a squint, I was more inclined to love them than anyone else.'[28] With the passing of time he recognized that the girl's squint was a defect, and he moved beyond his childish infatuation. He was soon ready to leave his childhood behind, to leave his native village, and to take the first insecure steps in his education.

A Jesuit Education

The Jesuits had been expelled from France in 1595, following the assassination of Henry III in 1589, and they were expelled again more definitively, almost two centuries later, in 1763. In the intervening period, however, they enjoyed a public role – in education, in church and religious controversy, and in politics – that was unequalled by any other religious order.[29] Their readmission to France in the late sixteenth century and the founding of La Flèche College coincided with the official reconciliation of the king, Henry IV, to the Catholic Church and his reluctant acceptance by Catholic nobles as the legitimate successor to Henry III. The unusual circumstances of the Jesuits' readmission and the hostility of established educational and religious powers in France made them suspects in many of the controversies that took place during Descartes' life. Thus the Jesuits not only educated Descartes; their contentious role in French public life in the seventeenth century life made them one of the permanent points of reference for his professional career.

When a Dominican friar assassinated Henry III in 1589, the throne was claimed by Henry de Bourbon. At the time Henry was a Protestant, and his claim was not recognized by supporters of the Catholic League, by the

Pope (Sixtus V), or by the faculty of theology at Paris. Faced with such united political and ecclesiastical opposition by Catholics, Henry publicly abjured his Protestantism in 1593 and then wrote to the new Pope, Clement VIII, asking for absolution. This was eventually and somewhat grudgingly conceded two years later, in 1595. It remains a matter of dispute whether Henry IV was sincere in his change of religious allegiance, or whether he publicly changed sides in order to mollify his powerful political critics. It is at least clear that he remained sympathetic to the position of Huguenots in his kingdom, and he signed the Edict of Nantes in 1598 to provide them with minimal religious and political tolerance. Huguenots represented a minority in the kingdom at about 8–10 percent of the total population. However, they were particularly well represented in certain towns, where they had their own local representative bodies. La Rochelle was famously one of those, at least before the siege of 1627–28, and so was Châtellerault, where Descartes' family lived.

Following his conversion to Catholicism, the king acceded to a long-standing request from the Jesuits for permission to return to France, and in September 1603 he invited them to open a new college at La Flèche, where he himself had grown up as a young boy. Nonetheless, he also acknowledged the objections of the University of Paris against granting the Jesuits permission to reopen their former college, Clermont College, in Paris.[30] Thus La Flèche College was very much more than simply a college founded with formal royal approval. It was to be called 'The College of King Henry IV'; it represented a provisional substitute for the prestigious Jesuit college at Paris; and it was endowed with funds and prize money by the king so that students would not have to pay tuition fees. Finally, as a special mark of his interest, the king decreed that, after his death and that of the queen, their hearts should be preserved in the choir of the college chapel and that their portraits should be displayed there. In making this provision, he hardly anticipated the circumstances or the relative speed with which his decree would be implemented.

The college opened for new students in February 1604, and Descartes' older brother, Pierre, was among the first to enroll. Despite the official opening date, the school was still under construction for many years, and the church was not completed until 1621, long after Descartes had left. La Flèche accepted two kinds of pupils, those who were boarding and those classified as 'external' or day students. Within a few years, the total number of students increased to approximately 300 boarders and 1,200

day students, and these figures remained relatively stable during the time that Descartes attended.

The curriculum at La Flèche was set out in detail in the Jesuits' *Syllabus of Studies*, an educational curriculum that had been adopted by the order in 1599 and implemented in France in 1603.[31] The whole course of studies was divided into thirteen classes, which represented six years of preparatory studies, three for philosophy, and four years for theology. The inclusion of theology might seem unusual, but at the time there were no separate schools for those preparing for the priesthood. This policy was subsequently the basis for the sharp critique of Jesuit educational initiatives in France by Étienne Pasquier. 'Although they were not permitted either by the ancient custom of the Universities or by the novelty of their Bulls to open their schools to all kinds of students, or to have anyone other than seminarians in their Colleges, nevertheless they opened a College not only for members of their Order but also for all students.'[32] Thus Jesuit scholastics attended side by side with lay students, although only the former continued their studies for the final four years of theology. While many students left after the first six years, Descartes remained to complete the three-year philosophy course.

Another unusual feature of Jesuit schools in this period was that students were not classified by their age – a practice that is almost universal now – but by their progress in studies or their level of achievement. The elementary classes were numbered in reverse order, from sixth to first. In a typical school of the period, therefore, the pupils in fifth class (i.e., the second-lowest grade in the school) varied in age from eight to eighteen, with the largest number of them being age ten.[33] Thus students who were just beginning their studies may have joined the school at a higher class than the sixth, and some of those who made little progress in their studies may have remained in the same class for a number of years.

The first four years of study were mostly concerned with grammar, and with acquiring fluency in writing Latin and Greek. To support these academic objectives, the students and teachers were required to speak Latin during all their formal classes.[34] This must have been very difficult for some students, especially those who had no ambition to become clerics or to distinguish themselves in academic study. One of Descartes' contemporaries at La Flèche was so overwhelmed by the demands of Greek that he wrote to his father and asked permission to be taken out of school.[35]

Once the students had a firm grasp of the two classical languages, they concentrated in second class on the humanities and in first class on rhetoric. The devaluation of the vernacular changed only with the founding of the Académie Française in 1634, although many authors continued to publish in Latin well into the seventeenth century.

Apart from learning Latin and Greek grammar, students in the elementary classes were trained in rhetoric, and in reading and writing poetry in the classical languages. *The Art of Rhetoric* (1577), by the Jesuit Cyprian Soarez, was one of the standard texts used for rhetoric. It specified the function of rhetoric – to teach people how to speak effectively in order to persuade listeners – and it provided students with an introductory course in five parts: discovery, disposition, elocution, memorization, and pronunciation.[36] The contents were drawn primarily from Aristotle, Cicero, and Quintilian, a selection that was subsequently reflected in the 'Rules for Professors of Rhetoric' in the *Syllabus*: 'Only Cicero may be employed for orations, while Quintilian and Aristotle as well as Cicero may be employed for fundamental precepts.'[37] However, it is clear from the other authors recommended, and from independent evidence about their readings, that the students at La Flèche were exposed to a relatively wide range of classical authors, including Plato, Demosthenes, Thycidedes, Hesiod, Pindar, Livy, Ovid, Virgil, and some Christian authors such as Basil and Chrysostom. Those in the Higher Grammar classes were encouraged to read the more accessible books by Cicero, such as his *On Friendship* and *On Old Age*.

If Descartes studied Quintilian carefully, as he was expected to have done, he would have learned from one of its classical exponents those features of rhetoric that were especially important for lawyers. The objective of any rhetorical presentation was to convince one's hearers. Hence the need, according to Quintilian, for clarity and distinctness – two concepts that were to figure subsequently as key features of the Cartesian account of evidence.[38] When constructing arguments, a persuasive lawyer was expected to engage with the emotional content of his case and to try to stimulate an appropriate emotional response in the listeners. 'The prime essential for stirring the emotions of others is, in my opinion, first to feel those emotions oneself.'[39] Thirdly, effective arguments should be based on certainty. 'It has generally been laid down that, in order to be effective, an argument must be based on certainty; for it is obviously impossible to prove what is doubtful by what is no less doubtful.'[40] These themes,

appropriately reworked in a different context, re-emerge in Descartes' theory of knowledge.

Elementary studies at La Flèche were followed by three years of philosophy. The first year was devoted to logic, the second to physics and mathematics, and the final year to metaphysics. Logic included two months on the basic logic of Toletus and Fonseca, the second book of Aristotle's *Physics*, and various suggestions about definition that are found in *On the Soul* and the *Topics.* The mature Descartes was consistently critical of the value of logic as taught in schools at the time. He reflected, in the *Discourse on Method*:

> When I was younger, I had studied a little logic as part of philosophy and, in mathematics, I had studied geometrical analysis and algebra – three arts or sciences that seemed as if they ought to contribute something to my project. But when I studied them I noticed that, in the case of logic, its syllogisms and most of its other rules are more useful for explaining to someone else what one already knows than for learning them or even, in the Lullian art, for speaking uncritically about things that one does not know. (vi. 17)

The study of physics and mathematics was even less satisfactory. The *Syllabus* gave the following rules for a mathematics teacher. 'Let him explain in class to the students of physics for about three-quarters of an hour the elements of Euclid. . . . after they have become somewhat familiar within two months, let him add something of geography or of the sphere or other matters which students are glad to listen to, and this along with Euclid either on the same day or on alternate days.'[41] Mathematics was a relatively late addition to the Jesuit curriculum, and in many of their schools there was no professor of mathematics at all. This seems to have resulted partly from opposition from the philosophers who were already established, and partly from a lack of experienced or adequately trained teachers.[42] One of the provisional remedies invoked was to exploit the talents of Jesuit theology students who were studying at the same college and who had already mastered the basics of mathematics. This was the solution adopted at La Flèche. Jean François was a theology student during the years 1612 to 1616, and he also functioned as a teacher of mathematics. At that time, the subject called 'mathematics' was not as narrowly defined or as clearly demarcated from its applications as it is today. It included, among other things, astronomy, optics, music, mechanics and hydraulics, surveying, and the art of fortification. The scope of the subject was not

matched by an equally extensive student interest. As late as 1627, only sixty-four students were studying mathematics in the Jesuit colleges at La Flèche and Paris, which represented less than 0.5 percent of the total student enrollment and just over 7 percent of those in the philosophy cycle.[43]

In contrast with this training in skills that were relevant to the students, many of whom might have pursued careers in which applied mathematics was useful, their study of physics was based on certain books of Aristotle that were rapidly becoming obsolete. These included, in the second year, *On the Heavens*, Book I of *On Generation and Corruption*, and Books 6 and 7 of the *Physics.* The early seventeenth century was a period of intensive questioning of the fundamental efficacy and explanatory value of Aristotelian physics, and it would have been impossible for Descartes' teachers simply to read from Aristotle without any reference to recent challenges to his system. However, the basic concepts in terms of which Aristotle thought of the physical world, and the kinds of problems that were classified as physical, together with the perspective from which they were discussed, must have been taught to the young students. It was this general perspective, rather than any detailed solutions, that Descartes subsequently challenged with an intensity that could be explained only by personal experience.

Besides, the *Syllabus* required professors to respect Aristotle, even when they did not follow his teaching, and to refrain from presenting novel or dangerous views to their students. Rule 2 for professors of philosophy stated:

> In matters of any importance let him not depart from Aristotle unless something occurs which is foreign to the doctrine which academies everywhere approve of; much more if it is opposed to the orthodox faith, and if there are any arguments of this or any other philosopher against the faith, he will endeavour earnestly to refute them according to the Lateran Council.

The same conservatism was repeated in the rules for the prefect of studies, which specified the books that should be made available to students. 'He shall give to the students of theology and philosophy not all books but . . . besides the *Summa* of St. Thomas for the theologians, and Aristotle for the students of philosophy, some select commentary which they can consult in private studies.'[44] The rules for all professors of theology and philosophy required them to avoid 'new opinions' and not to introduce any

opinion that 'does not have suitable authority' or is 'opposed to the axioms of learned men or the general belief of scholars.'[45] Descartes adverted to this conservative feature of Jesuit schooling many years after he had left school, when sending a copy of his first publication to one of his former Jesuit teachers. He wrote to Father Noël, in October 1637: 'Since I know that the principal reason why your colleges very carefully reject every kind of novelty in philosophical matters is your fear that they will also bring about some change in theology, I would like to emphasize at this point that there is nothing to fear on that count from my views' (i. 455–6). The fear of novel opinions, and the corresponding respect for Aristotle once his works were adapted to the needs of Christian theology, was not confined to the Jesuits or even to Catholics.[46] Philip Melanchthon, one of the founding theorists of the Lutheran Reformation, constantly exhorted his students in annual graduation speeches to cleave to their Greek classical heritage as a necessary condition for protecting their Christian faith.[47]

No brief summary could do justice to the complexity of Aristotelian physics or to the various compromises with which its official teachers worked in the period when Descartes was a student.[48] One of the central features of Aristotle's system was a distinction between what were called 'matter' and 'form'. If, for example, one carves a statue from a block of marble, the stuff of which the statue is made is evidently marble, but what makes it a distinctive statue is the shape or form that results from the artist's skill. Aristotelians thought that they could understand all material things by analogy with sculpting a statue, and that they could thereby explain how things acquired all their distinctive properties. They claimed that there was one propertyless stuff (corresponding to uncut marble) out of which all material things were made and which was called 'primary matter'. Various distinct forms are impressed on this primary matter, and the result is the great variety of things that we see around us in the universe, such as trees, fish, birds, and so on. Thus what makes something a bird or, even more specifically, a seagull is that it has the distinctive form of a seagull. All the properties of a seagull are said to result from its possession of this form. It follows that the best way to explain any naturally occurring thing or phenomenon is to understand the form that makes it into the kind of reality that it is. This theory of forms was complemented by a theory of four causes, and by a distinction between (a) natural or intrinsic change and (b) unnatural or externally caused changes.

The Aristotelian tradition repeated, for about two thousand years, that there were four types of cause: efficient, formal, material, and final. The form and matter just mentioned reappear here in a slightly different guise, as material and formal causes. Since the starting point for much of Aristotle's physics was his reflection on living things, he thought of them as emerging from matter, being guided in their development by their form, and tending toward some predetermined natural goal (which is the final cause of their development). Evidently, this way of thinking of the natural development of plants and animals, and of the changes they undergo in their maturation and eventual decline, fails to address the kind of change that occurs when, for example, one body bumps against another and causes some change in it. Here Aristotle's 'efficient' cause had to do the work required.

The original biological paradigm and the distinction between different kinds of cause gave rise to fundamental conceptual problems at the core of Aristotle's physics. Some changes were said to be 'natural', that is, caused by the internal form or inner nature of some reality. Others were 'unnatural', or caused by an external factor such as a foreign body that is already in motion. One of the implications of this division between radically different causes was that it was impossible to conceive of the motion of a projectile in a coherent way. If we throw a stone into the air or launch a rocket, its initial motion upward is an 'unnatural' motion caused by the stone thrower or the rocket launcher. Once the stone reaches its maximum height and begins to descend, however, its subsequent motion is a natural motion downward that is explained by its inner nature. In fact, even its initial motion upward is an unresolved issue for the Aristotelian tradition. Some thought that, for example, an arrow shot from a bow continues to move because it displaces the air in front of it, and that this displaced air constantly curls around behind the arrow to give it an additional push in the same direction. Others tried to convert this externally caused motion into an effect that is internally explained. Jean Buridan (d. 1358), for example, suggested that the initial projection from the bow imparted to the arrow what he called an 'impetus', and that this new property – a kind of inner tendency to motion – moved the arrow in a way that is similar to the natural downward motion of heavy bodies. Descartes later questioned, not so much the detailed solutions offered by this tradition, but the very assumptions on which it was based and its failure

over many centuries to make significant progress in our understanding of natural phenomena.

The final year of the three-year philosophical cycle was devoted to metaphysics. This focused on other writings by Aristotle: Book II of *On Generation and Corruption*, *On the Soul*, and selections from Books 7 and 12 of the *Metaphysics*. This was a case, however, where the rule 'follow Aristotle' provided less than clear guidance. Aristotle's theory of the human soul had been a contentious issue for Christian philosophers since at least the thirteenth century. Some of his most insightful interpreters, such as the medieval Arabic philosopher Ibn Rushd (also known as Averroes), had challenged the ease with which Christian philosophers had adapted Aristotle to show that each individual human being has an immortal soul. Averroes understood Aristotle as proposing that there was a single world soul in which all thinking beings participate. However, such a shared active intellect did not fit easily with the Christian tradition, and it drew extensive critiques from Aquinas in *The Unity of the Intellect against the Averroists* (1269), and from Siger of Brabant in *The Intellective Soul* (1273).[49]

A similar attempt to return to Aristotle's original texts and their authentic meaning in sixteenth-century Italy persuaded a number of sympathetic commentators that, if the human soul is the 'form' that defines the nature of human beings, then the soul ceases to exist when an individual dies. Pietro Pomponazzi (1462–1525), the great Paduan philosopher, was notorious for defending this position.[50] While this avoided the one-soul-for-all approach of the medieval Arabic philosophers, it had equally unacceptable implications for those who wished to argue that each human being has his or her own distinct, immortal soul. Pomponazzi did not argue that the human soul cannot possibly be immortal. He defended the more modest position that, as far as human reason or philosophy can take us, there is no basis for believing that each person has an immortal soul, although it might be accepted on faith as part of the church's teaching.

The Lateran Council, a general synod of the Catholic Church, condemned these new interpretations of Aristotle in 1513.[51] Descartes' teachers were required to work within the principles and concepts proposed by Aristotle, and they were equally required to communicate to their young pupils the teaching of the Catholic Church as it was defined by Rome. They had to find a way, therefore, to present Aristotle's metaphysics in such a manner that it supported the two main contentions of Christian

metaphysics, namely, the existence of God and the immortality of the human soul. Specifically, professors of philosophy were forbidden to teach Averroes, and if they found anything worth reporting in his philosophy they were encouraged to dissemble and pretend that they had found it elsewhere: a professor 'shall not treat of the digressions of Averroes . . . in any separate treatise, and if anything good is to be cited from him, let him bring it out without praise and, if possible, let him show that he has taken it from some other source.'[52] Twenty-five years later, Descartes adverts to this in his letter of dedication of his *Meditations* to the theology faculty at the Sorbonne.

School Days

The years during which Descartes attended La Flèche College are not certain, but it is most likely that he arrived there at Easter 1607, when he was eleven years old, and that he left school at the end of the philosophy cycle in 1615, when he was nineteen.[53] There had been an outbreak of some unspecified contagious disease at the school in 1605, and this, together with Descartes' own fragile health, may have delayed the beginning of his formal education.[54] When the day arrived to leave home and venture forth, Descartes travelled about 160 kilometres, by coach or on horseback, carrying the essential provisions for his first school year. Apart from prescribed books, each boarder brought their own cutlery and a goblet. They also needed enough money to pay for the services of a tailor, and for the hairdresser who visited the school twice a week to cut and powder their hair. The books alone were very expensive. They included Nicot's French–Latin dictionary, Cicero's *Letters*, the *Adages* of Erasmus, student editions of Cicero and Virgil, and various religious books used at the college, such as a life of St. Ignatius and Louis de Grenade's *Guide for Sinners.*[55] By far the largest number of students lived in rented accommodations in the town, although they followed the same daily schedule as the residents. Descartes, however, joined his brother Pierre as a boarder.

The Jesuits are widely credited with introducing many changes into schools that helped distinguish their curriculum from the monastic practices on which they had previously been modeled.[56] For example, they introduced a half-day holiday on Thursday, and annual summer holidays that varied in length from the junior to the senior classes. These were taken

usually in September, so that students could return home and help with the harvest. Thus, apart from church holidays that had been traditional in schools, Descartes had annual summer holidays that varied from two weeks when he was in the junior grades to a maximum of two months when he was studying philosophy. The Jesuits also reduced the classes each day to about five and a half hours, leaving extra time for private study, recreation, and of course for prayer. However, even with all these progressive changes, the school week still appears extremely monastic from our perspective. There were minor variations from one school to another and for students of different classes, but the general structure of the school day was the following:

5:00/5:30 A.M.	Rise, pray, and repeat lessons to one's prefect
7:30/8:00 A.M.	Formal classes
10:00 A.M.	Attend Mass
10:45 A.M.	Lunch in the refectory
11:30 A.M.	Recreation
12:00 A.M.	Private study, and repetition of lessons with one's prefect
2:00–5:00 P.M.	Formal classes
6:00 P.M.	Dinner, and recreation until 7.00 or 7.15
7:00 P.M.	General repetition of lessons
9:00 P.M.	Visit to the church and prayer before retiring

This daily schedule applied seven days a week, although there were some variations on the weekend. Sunday included more formal religious services, and philosophy students had a weekly disputation for two hours on Saturday and, once a month, a disputation on a prearranged topic that extended over the morning and afternoon on Saturday.[57] Descartes seems to have been excused from the early rise by the college rector, Father Charlet, who was a distant relative of his. Many years later he wrote to him as someone 'who acted as a father to me during all my youth.'[58] Descartes' father had been dead for four years, at that stage, and he was able to tell Father Charlet, without exaggeration: 'I think of you as if you were my father, and I believe you will not be offended if I communicate with you as I would with him if he were still alive.' Unfortunately, there was not much difference, from Descartes' perspective, in the paternal care he received from his father while alive or dead.[59]

The college integrated students from various social classes, at least in the sense that it included some who were genuine nobles among the many

who were bourgeois.[60] For the most part, however, Jesuit schools reflected the social stratification of French society in the early seventeenth century and the lack of interest in formal education among merchants and peasants, who did not see the benefits of having their children study Latin and Greek for six years, much less philosophy. While some sent their sons to school to support their aspirations toward upward social mobility, they usually withdrew them after first class (that is, before beginning philosophy). La Flèche also educated Jesuit scholastics and lay pupils together in the same classes. It had originally been planned to establish a separate novitiate for young Jesuits in an adjacent Augustinian priory, St. Jacques, but this plan was abandoned. The alternative was to integrate Jesuit students into the regular school, so that by the time that Descartes reached the philosophy classes the school included fifty-five Jesuit scholastics and approximately one hundred Jesuits in total.[61] One of the advantages of this integration was that the senior Jesuit students could be used as tutors or *répétiteurs* for lay students. This partially explains Descartes' comments, in the *Discourse*, that his fellow students 'included some who were already destined to replace our teachers' (vi. 5). The sheer size of the classes, some of which included as many as two hundred students, made it necessary to have some kind of tutorial system in place.

The predominant style of teaching was thus very much a study of basic texts that were accessible even to the average student. The teacher offered an initial reading of a text, explaining the meaning of words and the implications of obscure passages, and the students then collectively read the texts out loud and recited them in unison. Montaigne commented sarcastically on his school experience that 'teachers are for ever bawling into our ears as though pouring knowledge down through a funnel: our task is merely to repeat what we have been told.'[62] Other periods during the day provided an opportunity for private revision, and the students were then required to meet their prefect and, individually, to recite or explain their daily quota of lessons.

During at least part of his studies, Jacques Dinet was Descartes' principal prefect, and Etienne Noël was a theology student and part-time tutor to whom he reported almost daily to show that he had completed his lessons. The daily contact with these Jesuits explains the ease with which, many years later, Descartes sent a copy of his first book to Father Noël,[63] and asked Father Dinet, when he was provincial superior of the Jesuits, to help deflect or restrain the criticisms of the *Dioptrics* that were written

by another Jesuit, Pierre Bourdin. Apart from Jean François (1582–1668), already mentioned as teaching mathematics, Descartes also knew François Du Ban as a contemporary in theology, and he was taught by Denis Petau (1583–1652), who was professor of rhetoric before moving to Paris to teach theology; Pierre Musson (1561–1637), whose dramatic compositions had been produced at the college during Descartes' school days, in 1608–12; and François Fournet (1581–1638), who taught philosophy from 1611 to 1614, as did Louis Lallemant (1588–1635) and Nicolas Caussin (1583–1651). Caussin subsequently became famous as the author of *The Holy Court* (1624) and other partisan writings.[64]

There are no reliable records of Descartes' studies at school. Many years later, Nicholas-Joseph Poisson – who by then had become an Oratorian priest and a loyal supporter of Cartesian philosophy – reports meeting a friend in Saumur, in 1663, who claimed to have attended La Flèche at the same time as Descartes. There is probably a certain amount of retrospective projection in the following description of the philosophical skills of the schoolboy René:

> When there was a question of proposing an argument or disputation, initially he asked a number of times about the definition of terms. He then asked how various principles that were accepted in the schools should be understood. Then he asked if one agreed with various known truths, about which he wanted to have agreement, and from this he set up a simple argument from which it was very difficult to budge him subsequently.[65]

This may easily have been the standard format for a disputation, rather than an anticipation of the demand for clear and distinct ideas that later characterized the most famous alumnus of La Flèche.

The daily routine of studies was relieved slightly by dramatic productions that were composed by the professors, and evidently by various games that children commonly played in the early seventeenth century. The *Syllabus* included specific guidance for the 'tragedies and comedies' that were to be performed. They had to be done in Latin; they could not deviate from anything that was not 'sacred and pious'; and they could not include any 'feminine role or feminine attire.'[66] Before attending school, many children learned to ride a horse, to play music (for example, the lute or violin), to dance, and to play various board games or games that involved gambling.[67] They obviously did not renounce all these skills at the schoolhouse gate. Students at La Flèche enjoyed various ball games, including tennis and volley-ball, and they also engaged in various forms

of board games or gambling, though gambling for money was officially discouraged.[68] The fact that the *Syllabus* explicitly forbade students from bringing to class 'arms, daggers, knives or other such things' might help put in context the society from which they came and the dangers to personal safety for which they had to be prepared on their journeys to and from school.

One other feature of the school day, perhaps the most important one in the eyes of the Jesuits, was the spiritual development or religious training of the students. The Council of Trent had underlined the importance of Catholic education as a means of consolidating the membership of the church against the influence of reformers. The Jesuits saw themselves as dedicated officers of the Counter-Reformation, and they took a special vow of obedience to the Pope. In the context of their schools, therefore, they were particularly conscientious in following the Tridentine model of religious instruction based on a catechism. The professor of rhetoric assumed this responsibility as a special feature of classes on Saturday. Teachers introduced each class with a prayer, and even external students were encouraged to 'confess their sins at least once a month, and to be present at the daily sacrifice of the Mass at the appointed hour and at the sermon on Holy Days.'[69] The students were also invited to become members of various confraternities, which met as religious clubs within the school. This was one of the ways in which they helped cultivate prayers to and special veneration of the Virgin Mary, including praying the rosary.[70] Finally, the students went on a week-long retreat once each year, under the guidance of the *Spiritual Exercises* of Saint Ignatius of Loyola.

Descartes named one of his most famous essays *Meditations,* in which he is often said to have given a special place to a form of pure thinking that contrasts with the deceptive illusions of the imagination. The *Exercises* of Saint Ignatius, however, relied very much on the imagination to represent scenes from the life of Christ, to reflect on the Christian's life as a journey toward God; and they systematically invoked the senses as a starting point for acquiring an appreciation or understanding of spiritual realities. The *Exercises* are divided into four principal sections, called 'weeks', and some of these in turn are divided into 'days'. Many exercises begin with an imaginative representation of a scene from the life of Christ. For example, the first exercise in the first week offers the following guidance to the retreatant:

Note. For a visual contemplation or meditation, the picture is an imaginative representation of the physical place where the event to be contemplated occurs. By physical place I mean, e.g., a temple or mountain where Jesus Christ our Lord is, as demanded by the subject-matter; where the subject-matter is not something visible, as in the present case of sins, the 'picture' will be the idea, produced by an effort of the imagination, that my soul is a prisoner in this corruptible body.[71]

This method of using the imagination to set the scene and to assist one's thought to focus on a specific issue is repeated throughout the *Exercises*. With unrelenting frequency and regularity, Ignatius asks retreatants to form an appropriate 'picture of the scene' in their imagination.[72] He also invites those who are making a retreat, at the very outset, to move through its various stages without knowing in advance what is to be done at later stages of the journey. 'It is a good thing for the retreatant in the first week not to know anything about what he will be doing in the second week: he should struggle in the first to get what he is looking for, as though he had no hope of getting anything in the second.'[73] There are obvious parallels with the first day of Descartes' *Meditations*, in which the meditator is left drowning in skeptical doubts as if there were no way out. However, in contrast with what Descartes later argued, Saint Ignatius expected readers to accept uncritically the teaching of the Catholic Church, even if it seemed to conflict with the most obvious deliverances of their own senses. 'To arrive at complete certainty, this is the attitude of mind we should maintain: I will believe that the white object I see is black if that should be the decision of the hierarchical Church. . . .'[74]

The Assassination of Henry IV

The repetitive daily life of students at La Flèche was interrupted by various unpredictable events that, despite a conscious implementation of the Jesuit curriculum, could not have been excluded from their otherwise cloistered and somewhat artificial environment. The country was subject to frequent outbreaks of disease, and one of these, described as involving both 'fevers and dysentery,' affected the college in 1613.[75] In the following year, France seemed as if it were on the brink of a civil war, and the young King Louis XIII visited the college. However, the event that was most prominent during the years that Descartes attended must have been the assassination of King Henry IV and the subsequent funeral ceremonies held at the college.

On Friday, 14 May 1610, King Henry IV was riding in an open carriage toward the royal palace in Paris (to visit his mistress, it was widely believed) when his carriage was accidentally blocked on a narrow street, rue de la Ferronnerie, by two parked carts. While waiting to have the street unblocked, his assassin, François Ravaillac, exploited the opportunity by jumping into his carriage and stabbing him with a knife several times in the chest. The king died almost immediately. Henry IV had been planning to leave Paris that day at the head of 30,000 troops to recover from the Austrian empire a disputed piece of territory on the German border near Cologne. This suggested initially a political motive for the regicide, but under questioning it emerged that Ravaillac was a disgruntled 'good Catholic' who claimed that the king was too sympathetic to Calvinists, and that he was waging war with the Pope by his opposition to the Austrian emperor. The most likely explanation of Ravaillac's motivation is that he was psychologically disturbed. He had joined the Benedictine order for a short time in his youth but had been encouraged to leave because he was having visions. He certainly had no connection with the Jesuits, and there was no evidence that they were in any way involved in the affair. Yet, despite that, there was a general suspicion that the Jesuits were in some way responsible for the king's assassination.[76]

The unfounded allegation against the Jesuits underlines the extent to which they were widely perceived to be supporters of the Pope against Gallican sympathies in the French church, or supporters of Spain in its war with France (since Ignatius and all the early Superior Generals of the order were Spanish). In summary, they were suspected of being secretly allied with foreign powers, political and ecclesiastical, in a way that compromised their allegiance to the French crown. When Henry IV had allowed them to re-enter France and had invited them to found a college at La Flèche, against the explicit advice of the *parlement* of Paris and the University of Paris, he had placed a senior Jesuit as a permanent member of his household as confessor to the king. At the time of his death, Father Pierre Coton was his confessor, a coincidence that gave rise to the quip that 'the king has cotton in his ears.' Given the widespread suspicion of the Jesuits, and the opposition of other interest groups to their apparently privileged role, their immediate response to Henry IV's death was an extremely public and obsequious expression of exaggerated grief and loyalty. This was an opportunity to implement the king's wishes about where his heart should be buried, and to win support with the

queen, Marie de Médicis, who would be regent during the minority of Louis XIII.

On 1 June, following the principal religious ceremonies in Paris, the king's heart was carried on a three-day funeral journey to the town of La Flèche, accompanied by nobles, soldiers, and the Provincial of the Jesuits in Paris, Father Armand.[77] Since the college chapel had not yet been built, the ceremonies took place at the local parish church of St. Thomas, at which Father Armand preached a lengthy sermon in praise of the deceased monarch. Every year subsequently until the eighteenth century, beginning on 4 June, the college held a three-day commemoration of these events, in which the school pupils and the staff of the college participated. This included a public procession carrying the king's heart from the Church of St. Thomas to the college chapel, philosophical and academic disputations, and, on the third day, a theatrical presentation that honoured the memory of the late king.

The ceremonies for the first anniversary were published at La Flèche under the title: *For the Anniversary of the Death of Henry the Great: the Tears of the College of La Flèche, directed by the Society of Jesus.*[78] This is no small pamphlet. It is a book of over four hundred pages, which includes poems written by the staff and students in Latin, Greek, and French, together with the text of the anniversary funeral oration.[79] The commemorative oration begins with the words: 'Gentlemen: if this discourse, washed away by tears as soon as it emerges from the mind and the pen, is interrupted by sighs, accept it as conceived and formed in a heart that it broken by grief.'[80] The unrelenting rhetoric of sorrow and copious tears makes it appear as if the preacher had just lost his most intimate friend: 'How many times during this past year have tears welled up in my eyes as I passed by the places and pathways of your tender youth, of which these woods, these houses and gardens remind me every day.'[81]

Among the relatively few verses written in French in *The Tears*, there is a sonnet about the death of the king and the discovery, by Galileo, of the moons of Jupiter. The fact that this is the very same year in which Galileo's discoveries were published indicates that the sonnet's author was well informed about recent developments in astronomy. The sonnet contrasts the flood of tears that had been shed in France for the death of the king, a deluge that was in danger of flooding the whole country and its neighbouring provinces, with the benefits derived from the bright guiding

stars of Jupiter. There are connotations of the empty tomb associated with the resurrection of Jesus, as reported in the Gospels, and the king's empty tomb once God has raised him as a celestial flame in the heavens of Jupiter.[82]

When Descartes completed his college education in September 1615, he emerged from what he later described as 'one of the most renowned schools in Europe' (vi. 5) with a classical education, but no university qualification.[83] For, despite Henry IV's approval for establishing Jesuit colleges, the universities retained the exclusive power of awarding professional qualifications in the various professions such as law and medicine. If Descartes were to follow the family tradition, therefore, he needed a university degree, and for that reason he went to the University of Poitiers. He seems to have been in Poitiers from 1615 to 1616, and to have lodged with his maternal uncle, René Brochard. Poitiers was an obvious choice for Descartes. Apart from his uncle's residence there and its nearness to his home, his family had earlier connections with that university. Among them, his great-grandfather, Jean Ferrand, had become rector of the university in 1568.

Following one year of study, possibly completed without attending lectures, Descartes registered at the University of Poitiers on 21 May 1616 and graduated on successive days, 9 and 10 November 1616, with a bachelor's degree and a licentiate in civil and canon law. It was customary to defend publicly the theses on which the licentiate was awarded some weeks after the official graduation. Thus Descartes' public defence was scheduled for 28 November 1616, and a poster to that effect, which listed the forty theses to be defended, was displayed in Poitiers.[84] For some unknown reason, the defence was delayed and was rescheduled for 21 December. The theses were concerned with legal problems that arise in validating wills and bequests, as befits someone who was studying to practice civil law. Having completed his formal education, Descartes was twenty years old; he was qualified for a career in law and could have followed his father and older brother to Brittany to become a king's counsellor. Alternatively, he could have envisaged a post as a teacher, since his qualification was already the highest one given by a university, or he might have considered joining the ranks of the clergy or entering religious life (a choice that emerged prominently among his nieces and one nephew). He chose none of these. He summarized the uncertainty that caused his change of mind in the *Discourse* as follows:

I have been nourished by books since I was a child, and because I was convinced that, by using them, one could acquire clear and certain knowledge of everything that is useful for life, I had a great desire to study them. But as soon as I had concluded the course of studies at the end of which one is usually admitted to the ranks of the learned, I changed my mind completely. For I found myself so overcome by so many doubts and errors that I seemed to have gained nothing from studying, apart from becoming gradually more conscious of my ignorance. (vi. 4)

Thus, instead of pursuing a legal career, Descartes seems to have spent some time in Paris before departing on the first journey of what turned out to be almost ten years of travel and research. Since there are no contemporaneous indications from Descartes about this formative period of his life, one has to rely on his reflections twenty years later, when he was composing the *Discourse*. To some degree he may be describing the experiences of 1607–16 from the perspective of what occurred only much later. However, this text provides the only personal account, by this famous graduate of La Flèche College and of the University of Poitiers, of the significance he attached to his formal education.

Reflections on His Education

By the time Descartes came to reflect on his education and to assess its content and benefits, he had read Montaigne's *Essays* and had thus reviewed his early schooling through the eyes of a well-known critic of the schools. Montaigne contrasted the useless book-learning of the schools with relevant skills naturally acquired by practice: 'we often waste years training children for occupations in which they never achieve anything.'[85] He doubted the value of formal training in rhetoric, assuming that one could acquire the appropriate skills more naturally. 'All those fine "colours of rhetoric" are in fact easily eclipsed by the light of pure and naïve truth.'[86] Although Montaigne was a firm supporter of the merits of learning Latin, he thought that classical languages could be learned much more easily and inexpensively by the same practical methods by which we learn a vernacular language. 'There is no doubt that Greek and Latin are fine and great accomplishments; but they are both too dear.'[87] He especially recommended, instead of school attendance, that young people be exposed to the customs and traditions of different peoples. 'For this purpose [i.e., to learn how to speak and judge well] mixing with people is wonderfully appropriate. So are visits to foreign lands.'[88] Thus Montaigne was both supporting

the kind of education that a gentleman required and sharply criticizing the means by which it was provided, especially the rote learning that was almost universally endorsed. Apart from the traditional professions that were available only to graduates, he argued, and the underlying motivation of making money that supported the whole system, young boys would be better advised to skip school completely, as girls did at the time. 'For without the unique goal which is actually set before us (that is, to get rich by means of jurisprudence, medicine, paedagogy, and Theology too, a goal which does keep such disciplines respected),' people in Montaigne's time would have been as uneducated as their equally successful ancestors.[89]

Descartes similarly acknowledged 'that law, medicine and the other sciences bring honour and riches to those who practise them' (vi. 6). However, 'neither the honour nor the profit that they promised were enough to persuade me to study them. For, thank God, my situation was not such that I had to earn a living from the sciences in order to supplement my income' (vi. 9). Descartes had a modest inheritance, and he therefore thought that he was financially secure enough to devote his life to addressing the fundamental questions about the sciences that had been motivated, at least in part, by his uncritical Jesuit education.

Descartes provides a characteristically ambivalent evaluation of his early education in which he is simultaneously both grateful and critical. He accepts that 'the languages learned in school are necessary in order to understand classical texts,' that 'the reading of all good books is like a conversation with the most eminent people of past centuries, who were their authors,' that 'oratory has incomparable powers and attractions,' and that 'mathematics contains very subtle discoveries that can help very much to satisfy those who are curious, to facilitate all the crafts, and to reduce human labour' (vi. 5–6). The only negative note to emerge when reviewing the benefits of all the subjects he mentions, including ethics and theology, occurs in his comments on philosophy, when he says: 'philosophy provides ways of speaking plausibly about everything, and of making oneself admired by those who are less educated' (vi. 6). Without rejecting the Jesuits' contribution to his development, he considered that, by the end of his schooling, he 'had already devoted enough time to languages and even to reading the classics, to their stories and fables, because conversation with people from other periods is like travelling. . . . if one spends too much time travelling, one eventually becomes a stranger to one's own country' (vi. 6). However, the fundamental issue in his reflections – at

least when seen from the perspective of his subsequent research – was the insecurity of the foundations on which all the sciences were built.

Mathematics seemed to provide a paradigm of a reliable science, but, according to Descartes, even this discipline was compromised by the practical applications to which it was put. 'Above all else, I was interested in mathematics because of the certainty and self-evidence of the way it reasons; but I had not yet noticed its real use and, since I thought it was useful only for mathematical applications, I was surprised that nothing more noteworthy had been built on such solid and firm foundations' (vi. 7). The failure of mathematicians to develop its theory, and their distraction by the benefits of applied mathematics, both supported the promise of a foundational science and highlighted the extent to which philosophy, insofar as it offered such a foundation, failed to meet expectations.

> 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; therefore I was not so presumptuous as to hope to succeed better in it than others. 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. Thus, as regards the other sciences, in so far as they borrow their principles from philosophy, I judged that it was impossible that anything solid could have been built on foundations that were so weak. . . . (vi. 7–8)

It is impossible to avoid the impression that Descartes is retrospectively constructing a coherent development of his own career, seen from the perspective of twenty years of travel and (for much of that time) living outside France, and that he is offering as the fundamental motivation for a crucial choice in his life his estimation of the validity or certainty of the subjects that were taught as sciences in the universities. His logical next step, then, was to seek the truth elsewhere. Since he had manifestly failed to discover it in books and now understood why it was not likely to be found there, he decided to redirect his search for truth externally toward nature and, internally, within himself.

The immediate context in 1637 of these reflections on his school days was Descartes' attempt to avoid the debilitating impact of widespread scepticism in France and to launch his own intellectual project with a novel and reliable foundation. That explains the references to the uncertainty of what he learned at school and the inadequacy of his education. However, when he graduated from Poitiers University, he was still undecided about

what to do with his life. He showed little warmth or affection for his father, who had more or less abandoned him as a child. Although he had other family connections in the legal profession and could have pursued that career without moving to Brittany, he seems not to have been attracted by that option either. It is likely that he was moderately content with his education but aware of its limitations, and that he considered travelling abroad a way of getting experience of alternative possibilities. He had some intimation of the scientific developments that were being reported from Italy, Denmark, the United Provinces, and from central Europe, and he decided to visit at least some of those places to learn at first-hand what he had heard about only indirectly at school.