

DICTIONARY OF SCIENTIFIC BIOGRAPHY

IBN RUSHD—STAS

IBN RUSHD, ABŪ'L-WALĪD MUḤAMMAD IBN AHMAD IBN MUḤAMMAD, also known as **Averroës** (*b.* Cordoba, Spain, 1126; *d.* Marrakech, Morocco, 10 December 1198), *astronomy, philosophy, medicine*.

Ibn Rushd, who was called the Commentator in the Latin Middle Ages, came from an important family of jurists. His grandfather (who bore the same name as he, for which reason the philosopher is called the Grandson [*al-Ḥafīd*]) had been *cadi* (religious judge) and imam of the great mosque of Cordoba; he was also the author of a famous treatise on Malikite law, the *Kitāb al-Muqad dimāt al-mumahhidāt*, in which he set forth its principles with a view to facilitating its study. His father was also *cadi*. In this milieu the young Ibn Rushd received a very good Muslim education. His training was especially thorough in law, in which field his teacher was al-Ḥafīz Abū Muḥammad ibn Rizq. He learned by heart the *Muwatta'* of the Imam Mālik. He was also initiated into the science of the traditions, but he was less interested in it than in the principles of law. In theology he worked through the Ash'arite *kalam*, which, in Sunnite thought, represents a system of the *juste milieu* and of equilibrium between the extreme doctrines; it could not easily be defended except with dialectical arguments, which were inspired by controversies and often led to intellectually unsatisfactory compromises. Ibn Rushd later turned against this theology, attacking the most famous proponent of Ash'arism, al-Ghazālī. Ibn Rushd was certainly well acquainted with the Mu'tazilite *kalam*, which sought to be more rational, and if he included it in his condemnation of the speculative methods of all the *mutakallimun*, he was not indifferent to the problems that occupied this school. But it is evident from his own works that he favored primarily the type of reasoning used by the jurists, which seemed to him much more solid than theological reasoning and, in the areas in which it finds appli-

cation, much more in harmony with the requirements of pure logic.

Ibn Rushd studied medicine under Abū Ja'far Hārūn al-Tajālī (originally from Trujillo), a noted figure in Seville who was versed in the works of Aristotle and the ancient physicians. Thoroughly familiar with the principles (*uṣūl*) and various branches (*furū'*) of medical science, he was an excellent practitioner, and his cures were frequently successful. He was in the service of Abū Ya'qūb Yūsuf (1163–1184), the father of al-Manṣūr Ya'qūb ibn Yūsuf (1184–1199). This prince, during his stay in Seville, surrounded himself with philosophers, physicians, and poets. He patronized meetings of scientists, which were attended by men like Ibn Ṭufayl, Ibn Zuhr (Avenzoar), and Ibn Rushd himself. It is likely therefore that Abū Ja'far played an important role in the life of his student, teaching him not only medicine but also Aristotelian philosophy. It is worth noting, for a better understanding of Ibn Rushd's intellectual development, that he studied the Stagirite during his medical training. This explains why, later, while viewing Aristotle as the master of logic (*Ṣāḥib al-Mantiq*) and the first *falāsifa*, he was particularly interested in the natural sciences and physics, which occupy such a prominent place in the thought of the Greek philosopher.

Ibn al-Abbār, a historian born in Valencia in the year following the Commentator's death, gives in his *Takmila* the name of another physician—a man of the first rank in the practice of his art—who was one of Ibn Rushd's teachers: Abū Marwān ibn Jurayl.

The biographers make no mention of Ibn Rushd's philosophical studies. Ibn Abī Uṣaibi'a confirms that it was under Abū Ja'far that Ibn Rushd became interested in the philosophical sciences, and Ibn al-Abbār notes simply that he "inclined towards the sciences of the Ancients." These meager data are sufficient to substantiate the idea

that he approached philosophical problems with a scientific outlook, though without forgetting his early instruction in legal reasoning. To an important degree, therefore, it was his scientific and legal training that gave Ibn Rushd's thinking its particular cast.

It was still science that occupied Ibn Rushd's attention when he was in Marrakech, where, according to Renan, he supported the views of the Almohad ruler 'Abd al-Mu'min "in the erection of colleges that he was founding at this moment" (1153). We know, in fact, from his commentary on *De caelo* that Ibn Rushd conducted astronomical observations at Marrakech. He was undoubtedly referring to this period when he recalls, in the commentary on a book of the *Metaphysics*, his penchant for the study of astronomy in his younger years. It is possible that as early as this period he met Ibn Ṭufayl, who was to play a major role in his philosophical career by introducing him to Abū Ya'qūb Yūsuf. Now, Abū Bakr ibn Ṭufayl (Abubacer) was a philosopher, but also an astronomer. F. J. Carmody, in the introduction to his edition of al-Bīṭrūjī's *De motibus celorum*, reports an interesting remark by the author of this work:

You know, brother, that Abū Bakr ibn Ṭufayl, may God bless him, told us that he had been inspired with an astronomical system and with principles of motion other than those postulated by Ptolemy; these avoid use of eccentrics or epicycles. And he explained by this system all movements; and nothing impossible arose from this. He also promised to write on this matter; and his place in science is not unknown.

This declaration can explain the numerous similarities between the ideas of al-Bīṭrūjī and those of Ibn Rushd, if it is assumed that they derived from a common source in the thought of Ibn Ṭufayl. More directly, perhaps, than medicine, astronomy posed metaphysical problems. This fact is brought out by the account of a meeting that Marrākushī, who reports it in his *Mu'jib*, had from the lips of one of Ibn Rushd's disciples. It concerns an encounter between Abū Ya'qūb, Ibn Ṭufayl, and Ibn Rushd. The prince asked if heaven is a substance that has always existed and will continue to exist throughout eternity, or if it has a beginning. Ibn Rushd, who was at first troubled, became more confident and took part brilliantly in the discussion. Henceforth he enjoyed the favor of the prince. This episode reveals the close relationship that existed at this time between the problems of astronomy and those of metaphysics.

Abū Ya'qūb, complaining of the obscurity of

Aristotle's texts, asked Ibn Ṭufayl to make commentaries on them. The latter, thinking himself too old and too busy, may in turn have asked Ibn Rushd to undertake the project. This is perhaps what prevented him from pursuing the research and astronomical observations to which he would have preferred to devote his time.

Ibn Rushd remained in high favor throughout the reign of Abū Ya'qūb Yūsuf (1163–1184). In 1169 the philosopher became *cadi* of Seville, but he continued to work on his commentaries and paraphrases. In the latter year he completed his paraphrase of the *Parts of Animals*, and in the fourth book he stated that his task was made much more difficult by his official duties and by the absence of his books, which were still in Cordoba. He returned to Cordoba in 1171, still holding the office of *cadi*. Despite his many responsibilities, he managed to find even more time to devote to his commentaries. Between 1169 and 1179 he traveled through the Almohad empire, in particular to Seville, where he dated several of his works. In 1182 he went to Marrakech to replace Ibn Ṭufayl as chief physician to Abū Ya'qūb Yūsuf. He was then honored with an appointment as grand *cadi* of Cordoba.

During the reign of Ya'qūb al-Manṣūr Ibn Rushd enjoyed the prince's favor for ten years. It was only in 1195 that he fell into disgrace. It is possible, and even probable, that the Malikite *fuqahā'*—doctors of the law who in Spain were always the intransigent guardians of a legalistic form of Islam—had regained influence as a result of the struggles against the Christians. They may have then inspired a hardening of the attitude of the government toward all positions that could be suspected of weakening, at first doctrinally and then politically, the bastion of religion. Ibn Rushd was banished to Lucena, near Cordoba, and subsequently appeared before a high court of Cordoban notables who anathematized his doctrines. Edicts were issued ordering the burning of philosophy books and forbidding the study of philosophy.

When al-Manṣūr returned to Marrakech, to a Berber milieu, he canceled all these edicts and recalled the philosopher. But Ibn Rushd did not have long to enjoy his return to favor; he died at the end of 1198. He was buried in Marrakech near the Taghzut gate. Later his body was brought back to Cordoba. The mystic Ibn 'Arabī, who was still young, attended his funeral. He is supposed to have said, upon seeing the Commentator's remains placed on one side of the base of a monument and the books he had written placed on the other, that

all these philosophical works were equal to no more than a corpse. Although another anecdote recounts a meeting between Ibn Rushd and Ibn 'Arabī, in which the old philosopher supposedly recognized the young man's genius, it is certain that Averroism in no way leads to mysticism, unlike Avicennism. Seen in this light, Ibn 'Arabī's judgment assumes its full significance. Moreover, in the anecdote in question, when Ibn 'Arabī finds himself in the presence of Ibn Rushd, he first says "yes": yes, no doubt, to the philosopher's intentions; then he says "no": no to the method, no to a system in which the immobile prime mover closes the universe in upon itself, leaving no prospect at all for a mystical life.

Astronomy. In his commentary on Aristotle's *Metaphysics*, Ibn Rushd wrote:

In my youth I hoped it would be possible for me to bring this research [in astronomy] to a successful conclusion. Now, in my old age, I have lost hope, for several obstacles have stood in my way. But what I say about it will perhaps attract the attention of future researchers. The astronomical science of our days surely offers nothing from which one can derive an existing reality. The model that has been developed in the times in which we live accords with the computations, not with existence.

These lines express the essence of Ibn Rushd's thinking on astronomy. He was interested in the subject and acquainted with the history of its theories. Capable of explaining what Aristotle said about the systems of Eudoxus and Callippus, he was just as well informed about the work of Ptolemy, and, through the latter, he had some knowledge of the ideas of the ancients who preceded Hipparchus. He also knew the writings of the Arab astronomers. In this connection, it should be recalled that whereas scientists like al-Battānī (Albategnius) and Ibn Yūnus remained faithful to Ptolemy, others, such as Farghānī, Zarqālī, and Bīrūnī (who lived slightly later than Ibn Rushd, but whose conceptions are, in several respects, similar) altered more or less thoroughly the Ptolemaic explanations.

Certain authors returned to the vision of a world composed of homocentric spheres, while others took up again a theory that goes back to Thābit ibn Qurra, that of trepidations, or approach and recession (*al-iqbāl wa'l-idbār*), which Ibn Rushd briefly explains in his commentary. In this situation Ibn Rushd aligned himself with those astronomers who advocated a return to Aristotle, but in order to sort out his own ideas, he took into account the whole

of the history of the subject that separates him from the Greek philosopher. In fact, the abundance and the weakness of the contending theories left him very perplexed. Although he treated the scientific aspects of these problems as an expert, he hesitated to offer definitive solutions.

Ibn Rushd was certainly influenced by the "moderns," but he did not follow them blindly. He remarked that if one considers the plurality of the planetary motions, one can distinguish three kinds: (1) those accessible to the naked eye; (2) those that can be detected only with the use of observational instruments—which sometimes take place over periods exceeding the lifetime of an individual and sometimes over shorter periods; and finally, (3) those whose existence is established only by reasoning. The first movements pose no problems, but their description is far from sufficient for astronomical investigation. The second kind require the continuous collaboration of several generations, during which time it is evident that the instruments used can undergo improvement. As for the movements postulated on the basis of reasoning, one cannot always be sure that they correspond to physical realities, although it is possible to criticize a hypothesis by appealing either to new observational data or to the requirements of physical principles. These considerations are responsible for the caution Ibn Rushd displays when judging theories based on a given state in the development of the science (for example, those concerning the number of planetary movements, or the theory of the spiral movements [*ḥarakāt lawlabiyya*]). On the other hand, they account for his rigor when principles are at stake.

Widely varying figures had been proposed for the number of the planetary motions. Aristotle himself had counted fifty-five of them, which he reduced to forty-seven. Ibn Rushd relates that in his time the astronomers fixed this number at fifty, including the motions of the starry sphere. He himself admits forty-five: thirty-eight for the sphere of the fixed stars and the planets and seven for the diurnal motions of the planetary spheres. All the same, he wrote, "As to a profound examination of what is necessarily and really involved in this question, we leave it to those who devote themselves more completely to this art, those who dedicate themselves entirely to it and who concern themselves with nothing else." He expressed the same reserve regarding the spiral motions. They result from contrary motions, but they must be executed around different poles; for contrary motions around a single pole cancel themselves. It

may be objected that if the sphere that carries the celestial body is situated between two spheres moved in opposite directions, its resultant motion will be a violent one (*haraka qasriyya*), an impossibility for such a body. The best recourse is to suppose that these spiral movements arise from contrary movements about different poles. On this supposition, the body is able to move sometimes directly and sometimes with a retrograde motion, sometimes more rapidly and sometimes less rapidly; and there can be differences of latitude with respect to the zodiacal sphere. This explanatory principle leads to no absurdity: the spiral motion is that which occurs in the heavens by the combination of the diurnal movement of the sphere of the planet with the movement of the planet in its oblique sphere (*al-falak al-mā'il*). Understood in this sense, spiral motions can be admitted.

Ibn Rushd found the system of eccentrics and epicycles, adopted and developed by Ptolemy, completely unacceptable. From the time of Plato the task of astronomy had been to save the phenomena by providing a rational account of the irregular apparent motions of the planets. The burden of Ibn Rushd's criticism of this type of explanation is that it is mathematical and not physical. Physics explains, and metaphysics confirms, that the motion of the celestial bodies should be uniform, contrary to what it appears to be to the sight. It is, therefore, necessary to construct a model (*hay'a*) of a planetary configuration in such a fashion that it yields the visible phenomena, without at the same time entailing physical impossibilities. Posed in this manner, the problem has only two conceivable solutions. But only one of them fulfills all the conditions: the one that furnishes a model corresponding to a physical reality and that considers the apparent motion as composed of several motions. In this conception the planet is moved by the motion of the sphere and thereby participates in the universal motion; but it also has its own peculiar motions within its sphere. Ibn Rushd gives the example of the government of a just city (*medīna fādila*, an expression borrowed from al-Fārābī); it is unique, and its unity is preserved to the degree that the various chiefs imitate the monarch in serving him. Each one has his own function, just like the monarch who has his function and whose activity is the noblest. Another example is the subordination of the arts and sciences, which aid each other in the execution of a single work. This is the case of the auxiliary arts of the science of equitation, such as the art of bridling a horse.

The second solution is to posit the existence of spheres the centers of which are exterior to the center of the world, the eccentrics (*al-aflāk al-khārijat al-marākiz*), as well as of epicycles having their centers on the deferent (called in Arabic *aflāk al-tadāwīr*). This option involves various kinds of constructions, a circumstance that explains the disagreement of the astronomers over the number of the movements of the heavenly bodies. Regarding the zodiacal anomaly (that is to say, the fact that the planets traverse equal arcs in unequal times), Ibn Rushd shows how the astronomer is led to multiply the movements: "When one calculates the movements of the heavenly bodies, the calculation requires that they be in definite places on the sphere of the zodiac. Now, observing them with instruments, one discovers them in other places, which requires the introduction of a new movement for the body in question." It was in this way that Ptolemy introduced new movements for the moon and the other planets. But it was impossible for him to base these upon a *hay'a*, a term designating a configuration that, according to Ibn Rushd, should not be a simple theoretical model, but a physical reality. Ibn Rushd raised particularly strong objections to the hypothesis of the equant (*circulus aequans*), to which he alludes in these terms: "The same is true regarding what he believed, that is to say, that the uniform movements of the planets on their eccentric spheres take place [in a uniform manner] with respect to centers other than those of the eccentric spheres."

It is clear that the center of the equant and the equant itself, on which absolutely nothing actually turns, are pure mathematical fictions without the least physical reality. The Ptolemaic theory does not accord with the nature of things. The existence of the epicycle is fundamentally impossible, for "the body that moves in a circle moves about the center of the universe and not exterior to it, since it is the movable body moved along a circle that determines the center." Thus, in contradistinction to geometry, in which a circle is defined with respect to its center, the physical method starts from the reality of the circular movement, which is what entails the position of a center, the earth. If, therefore, there were an eccentric, there would be another earth exterior to our own. Now, that is physically impossible; if there existed numerous centers other than the earth, heavy bodies would fall toward these centers out of their natural places. Moreover, these hypotheses imply the existence in the heavens of superfluous bodies (*faḍl*) with no

utility "except that of producing a filling (*hashw*), as occurs, it is thought, in the body of animals." Elsewhere, concerning the theory of Eudoxus, Ibn Rushd writes: "There is no need to assume two movements of two celestial bodies [the second and third sphere for the moon and the sun]; for what their natures (*ṭabā'i*) can accomplish with a single instrument, they do not do with two."

At the end of these criticisms Ibn Rushd comes over to the opinions of the ancients: "They are exact," he asserts,

. . . by virtue [of their conformity to] the principles of nature; they are established, according to me, on [the basis of] the movement of a sphere unique in itself, about a center unique in itself, with different poles, two or more, as a function of what is required by an application corresponding to the apparent motions; for it may happen accidentally that such motions will be more or less rapid, direct, or retrograde.

Ibn Rushd remained loyal to Aristotle because he considered the master's thought a coherent system that must be taken as a whole. Undoubtedly, metaphysics was not for Ibn Rushd a sovereign science that imposes its conceptions on the other sciences. On the contrary, it is to a certain degree tributary to the others; it draws its knowledge of mobile substances, whether corruptible or eternal, from physics; and from astronomy it derives everything that it knows concerning the motions of the heavens. Nevertheless, celestial phenomena can be understood only within the framework of a general theory of substance. The celestial bodies have only a single motion, eternal circular translation in space. Since motion has a contrary—rest—these bodies preserve in themselves the possibility of rest (*imkān fī an taskana*). Aristotle showed that this possibility remains in them a pure possibility that can never be realized. But the result is, that while this motion is eternal, it is not established as such in the celestial bodies themselves. Thus arises the necessity of a first mover, immaterial and immobile, which moves bodies "as the loved one moves the lover." There exists, among the heavenly bodies, a hierarchical order (*tartīb*): as the motor of all the rest, the first heaven is obviously anterior "by nature, by the place it occupies, and by its size," as well as by the great number of its stars and the rapidity of its movement. The order of the planets follows the order of their spheres with regard to position (*makān*), but for the velocities this order is inverted; those closest to the earth have the most rapid motion, whether because of the

"nobility" of their motors or the smallness of their bodies (*ajrām*).

Ibn Rushd rejected the hypothesis of the "moderns" postulating a ninth sphere anterior to the first heaven. According to him, the reasoning that led to this doctrine was inspired by the Neoplatonic axiom that out of primary substance, which is one and simple, there can only proceed a being that is itself one. Now, what depends immediately on the prime mover is both the first heaven itself and the motor of the sphere that follows it. This, accordingly, is not a simple effect, and there must exist an anterior cause of this complexity. For Ibn Rushd this reasoning was pure fantasy; there is, at the level of the prime mover, neither procession, nor necessary dependence, nor action, since it moves while remaining immobile. Just as, for example, one and the same intelligible entity can be grasped by several knowing subjects from different points of view, the unique prime mover can be the end toward which several different mobile entities tend. The motive force that the first heaven receives from the prime mover is strictly analogous to the motive force that the sphere of Saturn receives from this same prime mover. "That is to say, the perfection of each sphere is given in the representation of the cause that is proper to it together with the first cause." It is in this manner that one must understand the motions of each of the heavenly bodies; they tend to a unique motion, which is that of the body itself, and which, in other terms, is their resultant. Similarly, the motions of the spheres tend toward the motion of the starry sphere, in the sense that they derive their perfection from the diurnal motion of the first heaven under the effect of the motion of the prime mover. Thus, the rejection of the Neoplatonic axiom allows the astronomer to unify the motions of the universe while justifying their diversity and plurality, above all at the level of the planets.

Philosophy. The philosophical writings of Ibn Rushd are divided into two groups, the commentaries on the works of Aristotle, and the personal writings, which are entitled *Faṣl al-Maqāl*, *Kitāb al-Kashf*, and *Tahāfut al-Tahāfut*.

As a commentator on Aristotle, Ibn Rushd attempted to restore the Stagirite's own thought, and to supplant the Neoplatonic interpretations of al-Fārābī and Ibn Sīnā. Ibn Rushd regarded Aristotelianism as the truth, inasmuch as truth is accessible to the human mind. Referring to a passage of the *Metaphysics*—which in the Arabic version reads, "The difficulty of metaphysics is shown by the fact

that it has not been possible to grasp either the truth as a whole or one of its important parts"—Ibn Rushd wrote:

Aristotle means that this [grasping of truth] has been impossible from the earliest times to his own age; it is as if he were hinting that he himself has grasped the truth, or at least most of the truth, and that what his predecessors grasped was very little in comparison, whether it be the whole or the most important part. The best thing is to assume that he comprehended the entire truth, and by the whole of the truth I mean that quantity which human nature—insofar as it is human—is capable of grasping [*Tafsīr mā ba'd al-Tabī'at*, Bouyges, ed., I, p. 7, 6g].

The implication of this declaration should be carefully noted: Aristotle not only greatly advanced human knowledge, he brought it to the highest possible state of perfection. He enunciated all the truth that is accessible to man, that is to say, all that can be established by demonstrative proof (*burhān*).

Although Ibn Rushd had a more complete knowledge of the *corpus Aristotelicum* and analyzed it more carefully and more accurately than did his predecessors al-Fārābī and Ibn Sīnā, he continued to view Aristotle essentially as the master of logic (*Ṣāhib al-Mantiq*), and it was the logical rigor of the demonstrations in the Stagirite's philosophical and scientific writings that produced the greatest impression on him.

Ibn Rushd made an important qualification in his evaluation of Aristotle, however; he cautioned that while the Greek philosopher possessed the totality of the truth available to man, he did not possess the Truth itself. In other words, man is confronted with questions that cannot be answered by the strict application of logical reasoning. While following Aristotle in all his demonstrations, Ibn Rushd nevertheless allowed for faith in revealed truths. When the Koran touches on the same subject as philosophy, it is philosophy that must be heeded, and the sacred text must be interpreted so that it will agree with the requirements of demonstrative reason. But in those cases where philosophy is silent, then instruction must come from the word of God.

The obscurity of many Aristotelian texts permitted wide latitude in their interpretation. The Commentator (as Ibn Rushd was called in the Latin West) naturally did not always give the correct explanation, especially since he often had to work with defective and even incomprehensible translations. In any case, it is clear that he always inter-

preted the texts in such a way as to accomplish two things: emphasis on the opposition between Aristotle and Plato, and criticism and correction of the positions advanced by Ibn Sīnā. Ibn Rushd rejected the view of metaphysics as the universal science that gives to all the other sciences their goals and principles, as well as the corollary to this view, that all human knowledge can, in principle at least, be deduced from metaphysics. At the same time, he opposed a cosmology that claimed to deduce, by the process of emanation, the celestial world of the Intelligences and of the spheres from the existence of the First Principle (*al-Awwal*) or Necessary Being. Nor did Ibn Rushd accept the idea that the last of the Intelligences, that of the sphere of the moon (also called the Active Intellect), is the *dator formarum* (*wāhib al-ṣuwar*), which gives form to the material beings of the sub-lunary world. In short, he rejected the Avicennian world view that explained the universe as having started from above and as having then proceeded downward, moving from the superior to the inferior. In Ibn Rushd's eyes this was Platonism. Faithful in this regard to Aristotle, he considered that beings become what they are as a consequence of a movement of desire toward the First Unmoved Mover, which causes them to pass from a potential state to an active state. This movement is, therefore, from below to above. Similarly, metaphysics is not a primal science that abides in a region beyond physics, whence it projects its light on both thought and matter. Metaphysics is instead the keystone that supports the edifice of physics; but it is a keystone set into place only after the latter has been constructed. For Ibn Rushd, it is not metaphysics that gives physical science its subject: changeable substance. Without the study of physics, the human mind would lack even the idea of change or movement. Further, contrary to Ibn Sīnā's erroneous interpretation of a passage of the *Posterior Analytics* (I, 2, 72a), it is metaphysics that, far from supplying the answer to everything, presses physics with its own questions (*yuṣā-diru*). In discussing the main subject of metaphysics, being as being, Ibn Rushd stated that "being" is, first of all, a word that the metaphysician studies according to its different applications in order to show that it refers, first of all, to substance: "The nine categories relate to existence by the fact that their existence is in a real existent (*al-mawjūd al-ḥaqīqī*), which is substance." The metaphysician also investigates the word "being" from different points of view. "Aristotle noted these different points of view concerning such words [the ana-

logues] in order to show that what is true of substance and the nine categories is also true of the word 'being' (*mawjūd*).² Thus, like Aristotle, Ibn Rushd accorded primacy to substance in his theory of being. This led him, in commenting on the *Metaphysics*, to hold that metaphysics in its entirety is a study of substance, corruptible or incorruptible, changeable or unchangeable. Such a study, of course, was not based on the fact that substance is qualified in this way, but rather on the fact that with these qualifications it is being. That is to say, metaphysics always considers substance under the aspect of being. Physics, on the other hand, studies substance as changeable, but it is, in any case, led to conceive of an unchanging substance. Thus the subject of this particular science is the same as that of metaphysics, but it is not examined from the point of view of being. Conversely, metaphysics is not unconcerned with the substances of our world or of the celestial world. It deals with the same substances discussed in Aristotle's *Physics* and *De caelo*, although it treats them from the point of view of being as being. Consequently, being as being is not a separate subject, distinct from all the others, and reserved to metaphysics in the way that, for example, changeable substance is the subject of physics and of no other science. Metaphysics studies being as being not in itself (that is impossible since it has no concept), but in all beings, and particularly in substance in all its forms.

Ibn Rushd propounded a theory of the intellect that is important both in itself and for its influence on the Latin Middle Ages. In order to understand it properly, one must constantly bear in mind that Ibn Rushd's main goal was to explain intellection without appealing to such separate intelligible entities as the Platonic Ideas. He observed, first, that man thinks by abstracting forms (called material forms) from the objects of perception. Apprehended by a process of abstraction, they are not intelligible entities perpetually *in actu*; rather, they are at first intelligible potentially, and only later actually. Thus, they are capable of being generated and of being destroyed; abstraction is not sufficient to prove that they exist separately. In fact, they are separable only in thought. Moreover, they consist of two elements, one of which plays the role of matter and the other that of form. This can be seen in the case of the concept "snub-nosed," in which concave is, as it were, the form, and the nose is the matter. Similarly, with the concept of man: it contains a quiddity that corresponds to its definition—this is the formal aspect; but there can be no man without flesh and bones—this is the material aspect

(cf. Aristotle, *De anima*, III, 4, 429b, 10 ff.). Consequently, in the intelligibles that we abstract there is a part that is liable to disappear (*fanīn*) and a part that subsists (*baqīn*). The latter resembles a purely immaterial "speculative intelligible" (*ma'qūl nazarī*). But such an intelligible is absolutely identical with the intellect that apprehends it. This being so, the material intelligibles that arise in us require an activating agent and a subject. Since it is evident that they are abstracted from perceived objects and, more immediately, from images of the imagination, it is permissible to suppose that in this faculty there is a disposition (*istīdād*) to produce and receive these intelligibles when they become actual. For Ibn Rushd, the forms of the imagination are, above all, the activating elements in the process. They are not subjects, except by virtue of the fact that the intelligibles are in them potentially, but not to the extent that they are *in actu*. Otherwise, there would be a mixture of the forms of the imagination and of the intelligible forms. Now, in order for it to be able to think all things, the intellect must be without mixture (cf. *De anima*, III, 4, 429a, 19). Ibn Rushd gives the name "first material intellect" to this "disposition to receive the intelligibles that are in the forms of the imagination." But this intellect cannot be the true subject; it can be generated and it can be destroyed, since the imagination is inseparable from the corporeal structure.

It is therefore necessary to introduce a second subject, the receptacle of the intelligible forms *in actu*. This is the material intellect (but not the first material intellect), also called the intellect *in potentia* (*al-'aql bi'l-quwwa*). It stands in the same relation to the intelligibles as the prime matter does to the perceptible forms. It is eternal (*azalī*), and it is called material because it plays a role analogous to that of prime matter. Like the latter, it cannot be generated and cannot be destroyed. As pure potentiality, it must receive from an intellect *in actu* the intelligibles *in actu*, without which it is nothing. But the individual human being, who, by his faculty of reason, not only conceives and apprehends but also exercises judgment (*hukm, tasdiq*), participates personally in these operations. The intelligibles that existed potentially in the forms of his imagination and are received in the material intellect common to all men constitute a kind of stockpile for each individual, to which he has free access whenever he wishes (*matā shā'a*). Thus arises the habitual intellect or intellect *en habitus* (*al-'aql bi'l-malaka*). An example of the knowledge it contains is that possessed by a professor at a time

when he is not teaching, but which he can make actual at will when he begins to teach. Since this habitual intellect depends on the individual's decision, it appears that it is particular to each man and represents his personal store of intelligibles among all those that are received or can be received *in actu* in the common material intellect.

If the imagination plays an activating role in this process, then the agent upon which everything depends is an intellect perpetually in an active state, and is called, for this reason, the active intellect (*al-ʿaql al-faʿāl*). It bestows being upon the material intellect in the way that what is actual bestows being on what is potential. In order to accomplish this, it actualizes the disposition in the imagination by acting on the imaginative forms—which are potentially intelligible entities—causing them to pass into a state of actuality. But it is not only agent: in itself it is form, intellect perpetually *in actu*; and it is absolutely identical with the intelligible entity that it apprehends. It is this intelligible that is called speculative. It was seen above that by their formal aspect the material intelligibles we grasp are like speculative intelligibles. On this level, man can be said to think with a speculative intellect. “One may therefore suppose,” wrote Ibn Rushd, “that it is possible for us to apprehend the active intellect.” In this case we will have reached an intelligible that is itself eternal and that, in contradistinction to the material intelligibles, is not dependent for its existence on the act by which we conceive it. Man thus arrives at a state that is called conjunction (*ittiṣāl*) or union (*ittiḥād*). This is the path that the sufis sought to travel. But, according to Ibn Rushd, they did not really succeed. Turning to Ibn Bājja's theory on this subject, Ibn Rushd subjected it to thorough criticism, asking if such a state of union will be natural or divine. If it is divine, how could it be an ultimate perfection of nature? If it is natural, how could nature manage to produce a state in which she negates herself? If this conjunction does not occur as a result of natural perfection, then it must itself be a perfection in the sense that the separate forms are a perfection for the celestial bodies endowed with circular motion, which in itself is a perfect motion. “In short, it is a separate perfection for a natural relation of perfection that is in matter.” The divine perfection exists only in the relationship (*iḍāfa*); that is to say, it is not there through a substantial presence. In conclusion, Ibn Rushd stated: “It is on account of this relationship [*nisba*] that the active intellect is called the acquired intellect [*al-ʿaql al-mustafād*].

It is evident, therefore, that while Ibn Rushd

employed the notion of an intellect common to all men, he did not infer from it that human immortality—which it alone can assure—is impersonal. He studiously modified Ibn Bājja's ideas so that they did not in fact lead to such a doctrine. If Ibn Rushd's conclusion is far from being clear and definite, it is owing to the difficulty of the problem. Moreover, the obscurity of even Aristotle on this very point is proof that the problem admits of no perfectly cogent demonstration. Under these conditions, one may let faith settle the issue.

In his personal writings Ibn Rushd sets forth his positions on the religious problems of his time, notably on the agreement between reason and faith and on the interpretation and speculative use that can be made of the verses of the Koran. A philosopher but also a believer, Ibn Rushd accepted the reality of Revelation. He maintained that the Koran and *ḥadith* encourage the study of nature. But the divine message takes into account the diversity of human capacities. All men are not equally responsive to rational demonstrations, and thus it is necessary to resort to dialectical or even rhetorical arguments. Whatever the means employed, it is our duty to understand both nature and the meaning of the language of Revelation. The role of the philosopher is either to furnish a demonstrative argument where it is appropriate but has not yet been formulated, or else to give the unsuitable literal meaning a metaphorical meaning (*majāz*) through a commentary containing figurative language (*ta'wīl*). The theologians (*al-mutakallimūn*) err in seeking to defend surface meanings that have no value as they stand with arguments that can only be dialectical if not sophistical. On the other hand, Ibn Rushd often appeals to the juridical reasoning of the *fuqahā'*. These methodological questions form the subject of Ibn Rushd's *Decisive Treatise and Exposition of the Convergence of the Religious Law and Philosophy*.

Ibn Rushd also wrote *Kitāb al-Kashf*, the full title of which may be rendered as *Exposition of the Methods of Demonstration Relative to the Religious Dogmas and to the Definition of the Equivocal Meanings and Innovations Encountered in the Process of Interpretation and which Alter the Truth and Lead to Error*. In this work Ibn Rushd examined the theories of the major theological sects, particularly the demonstrations of the existence of God, of His unicity, and of His attributes, and conceptions about the origin of the universe and the infinite chain of causation, as well as about predestination and human freedom. This treatise, too, is primarily methodological, but in it Ibn

Rushd stated his position on a number of issues, correcting errors based on false arguments and offering demonstrative proof wherever he can. Thus, on the subject of causes, he shows that God exercises an actual causality through his commandment (*amr*), and that it is not necessary to traverse in thought an infinite time to discover his creative act at the beginning of time. The question of human freedom, however, remains difficult to settle philosophically. One must trust in the Koran and accept its teaching of the existence of both divine omnipotence and human initiative, thus holding—as Bossuet was later to say—the two ends of the chain without knowing how they are joined. Finally, Ibn Rushd upholds the reality of a future life, stating that the dogma is not contrary to reason, even though reason cannot specify modalities of such an existence.

After the *Kashf*, which prepared the way for it, the *Tahāfut al-Tahāfut* may be considered the most complete exposition of Ibn Rushd's personal thought. It takes the form of a critique of the *Tahāfut al-Falāsifa*, in which the theologian al-Ghazālī refutes Ibn Sīnā in the name of religious dogma, using arguments that Ibn Rushd attacks because they are not demonstrative. While he considers al-Ghazālī's refutation worthless, he nevertheless thinks that Ibn Sīnā's ideas should be combated, and marshals a number of demonstrative proofs against the major themes of Avicennian thought. In the process, Ibn Rushd presents virtually an entire philosophical treatise. On the whole, he sought to replace Arab Neoplatonism with what he thought were Aristotle's real views, at the same time taking into account the demands of religious faith. Thus, while upholding the doctrine of the eternity of the creation, he explained that the First Mover moves the world not by a sort of attraction, but by his commandment (*amr*), like a king seated on his throne who has no need himself of moving in order to act. Offering an interpretation of what the Koran calls divine will, Ibn Rushd stated that it is the mode of action *ad extra* of a being perfectly transcendent to his own action and who thus can create a multiplicity of beings (contrary to the Neoplatonic doctrine, adopted by Ibn Sīnā, that the one can come only out of the one). In this perspective, Ibn Rushd demonstrated that God knows particular things in themselves and not in the universal—in this sense, that God's knowledge, which is creative, is closer to the knowledge we have of particulars than to our knowledge of the universal. With regard to the soul's destiny, Ibn Rushd, referring to Aristotle's

Nicomachean Ethics, observed that the soul acquires not only the contemplative virtues linked to the apprehension of the intelligible entities common to all men who think, but also personal moral virtues that it may preserve. A personal immortality is therefore possible.

ROGER ARNALDEZ

Medicine. The philosophical, religious, and legal works of Ibn Rushd have been studied more thoroughly than his medical books, since he was primarily a theologian-philosopher and scholar of the Koranic sciences. Among his teachers in medicine were 'Alī Abū Ja'far ibn Hārūn al-Tarrajānī (from Tarragona) and Abū Marwān ibn Jurrayūl (or Ḥazbūl, according to al-Ṣafadī). Ibn Rushd's major work in medicine, *al-Kulliyāt* ("Generalities"), was written between 1153 and 1169. Its subject matter leans heavily on Galen, and occasionally Hippocrates' name is mentioned. It is subdivided into seven books: *Tashrīḥ al-a'dā'* ("Anatomy of Organs"), *al-Ṣiḥḥa* ("Health"), *al-Marād* ("Sickness"), *al-Ālāmāt* ("Symptoms"), *al-Adwiya wa 'l-aghdhīya* ("Drugs and Foods"), *Ḥifẓ al-ṣiḥḥa* ("Hygiene"), and *Shifā' al-amrād* ("Therapy"). Ibn Rushd requested his close friend Ibn Zuhr to write a book on *al-Umūr al-juz'iyya* (particularities, i.e., the treatment of head-to-toe diseases), which he did, and called his book *al-Taisīr fi 'l-mudāwāt wa 'l-tadbīr* ("An Aid to Therapy and Regimen"). Ibn Rushd's *al-Kulliyāt* and Ibn Zuhr's *al-Taisīr* were meant to constitute a comprehensive medical textbook (hence certain printed Latin editions present these two books together), possibly to serve instead of Ibn Sīnā's *al-Qānūn*, which was not well received in Andalusia by Abū 'l-Ālā' Zuhr ibn 'Abd al-Malik ibn Marwān ibn Zuhr (Ibn Zuhr's grandfather). Two Hebrew versions of *al-Kulliyāt* are known, one by an unidentified translator, another by Solomon ben Abraham ben David. The Latin translation, *Colliget*, was made in Padua in 1255 by a Jew, Bonacosa, and the first edition was printed in Venice in 1482, followed by many other editions. Ibn Rushd wrote a *talkhīṣ* (abstract) of Galen's works, parts of which are preserved in Arabic manuscripts. He showed interest in Ibn Sīnā's *Urjūza fi 'l-ṭibb* ("Poem on Medicine," *Canticum de medicina* . . .), on which he wrote a commentary, *Sharḥ Urjūzat Ibn Sīnā*. It was translated into Hebrew prose by Moses ben Tibbon in 1260; a translation into Hebrew verse was completed at Béziers (France) in 1261 by Solomon ben Ayyub ben Joseph of Granada. Further, a Latin translation of the same work was made by Armengaud, son of Blaise, in 1280 or 1284, and a

printed edition was published at Venice in 1484. Another revised Latin translation was made by Andrea Alpago, who translated Ibn Rushd's *Maqāla fi 'l-Tiryāq* ("Treatise on Theriac," *Tractatus de theriaca*).

So far, no evidence has been provided to support, or refute, the claim that Ibn Rushd is quoted as saying, "He who is occupied with the science of anatomy will have more faith in God." In 1182, he succeeded Ibn Ṭufayl, who retired on account of his advanced age from the post of court physician to the caliph Abū Ya'qūb Yūsuf, and continued to be favored by his son and successor al-Manṣūr Ya'qūb ibn Yūsuf until the year when Ibn Rushd fell out of favor and his philosophical works (but not his medical and other strictly scientific books) were banned or burned. In the East, the writings of al-Ghazālī against the principles of Greek philosophy probably led to changes in the medical curriculum, whereby Greek philosophy was gradually supplanted by Islamic theology, which included some aspects of philosophy, and particularly logic. Furthermore, the massacre of Herāt in 1222 and the Mongol invasion that led to the eradication of the eastern caliphate in 1258, and (in the West) the period that followed Ibn Rushd's unsuccessful attempts to defend philosophers against theologians paved the way for a decline in Arabic medicine. The great image of the *ḥakīm* (physician-philosopher), which culminated in the persons of al-Rāzī and Ibn Sīnā, has been superseded by that of *faqīh mushārik fi 'l-'ulūm* (a jurist who participates in sciences), among whom were physician-jurists and theologian-physicians.

ALBERT Z. ISKANDAR

BIBLIOGRAPHY

- I. ORIGINAL WORKS. *Incipit translatio Canticor. Avic. cum commento Averrhoys facta ab Arabico in Latinum a mag. Armegando blassi de Montepesulano* (Venice, 1484); *Abhomeron Abynzohar Colliget Averroys* (containing the *Taisir* and *Antidotarium* of Avenzoar and the *al-Kuliyāt* of Ibn Rushd, edited by Hieronymus Surianus) (Venice, 1496); *Collectaneorum de Re Medica Averrhoi philosophi . . . Sectiones tres. I. De sanitatis functionibus. ex Aristot. et Galeno. II. De sanitate tuenda, ex Galeno. III. De curandis morbis, a J. Bruyerino Campegio . . . nunc primum Latinitate donatae* (Lyons, 1537); *Qūtāb el culiat. Libro de las generalidades* (Publ. del Inst. Gen. Franco para la investigación hispano-árabe) (Larache, 1939), in Arabic, published by manuscript photo-reproduction; *Talkhīṣ k. al-ḥummayāt* (Abstract of the book: "Fevers," Escorial, MS 884, i.); *Talkhīṣ k. al-'ilal wa al-a'rāḍ* (Abstract of the book: "Diseases and Symptoms," Escorial, MS 884, iii.); *Talkhīṣ k. al-mizāj* (Abstract of the book: "Temperament," Escorial, MS 881, ii.); *Talkhīṣ k. al-quwā al-ṭabī'iyya* (Abstract of the book: "Natural Faculties," Escorial, MSS 881, iii.; 884, ii.); *Talkhīṣ k. al-ustuqussāt* (Abstract of the book: "Elements," Escorial, MS 881, i.); *Sharḥ urjūzat Ibn Sīnā fī al-ṭibb* (Commentary on Ibn Sīnā's "Poem on Medicine," Dār al-Kutub al-Miṣriyya Ṭibb 1239; Yale University Library, Landberg Collection, MS 157, n. 1513).
- The Mediaeval Academy of America has begun publication of a critical ed. of the collected commentaries (medieval Latin and Hebrew trans.), H. A. Wolfson, *et al.*, eds., in the series *Corpus Commentariorum Averrois in Aristotelem* (Cambridge, Mass., 1949–); see H. A. Wolfson, "Revised Plan for the Publication of a *Corpus Commentariorum . . .*" in *Speculum*, 38 (1963), 88–104, which includes detailed bibliographical information. E. I. J. Rosenthal, *Averroes' Commentary on Plato's Republic*, 2nd ed., rev. (Cambridge, 1966), is based on a Hebrew trans. of the lost Arabic original.
- For bibliographical details of Ibn Rushd's works, see also C. Brockelmann, *Geschichte der arabischen Literatur*, I (Leiden, 1943), 604–606, and supp. I (Leiden, 1937), 833–836; G. Sarton, *Introduction to the History of Science*, II, pt. 2 (Baltimore, 1931), 355–360; and M. Steinschneider, *Die hebräischen Übersetzungen des Mittelalters und die Juden als Dolmetscher* (Berlin, 1893; repr. Graz, 1956). M. J. Müller, ed., *Philosophie und Theologie des Averroes*, 2 vols. (Munich, 1859–1875), is a basic work.
- II. SECONDARY LITERATURE. L. Leclerc, *Histoire de la médecine arabe*, II (Paris, 1876), 97–109; Ibn Abī 'Uṣaybi'a's *'Uyūn al-anbā' fī ṭabaqāt al-aṭibbā'*, A. Müller ed., II (Cairo-Königsberg, 1882–1884), 75–78; *The Encyclopaedia of Islam*, II (Leiden-London, 1913–1938), 410–413; new ed., III (Leiden-London, 1960–), 909–920; *al-Yāfi'īs Mir'āt al-janān*, III (Hyderabad, 1918–1920), 479; P. M. Bouyges, "Inventaire des textes arabes d'Averroès," in *Mélanges de l'Université Saint-Joseph*, 8, 1 (1922), 3–54; *ibid.*, 9, 2 (1924), 43–48 (additions and corrections to note V. 1); D. Campbell, *Arabian Medicine and Its Influence on the Middle Ages*, I (London, 1926), 92–96; G. Sarton, *Introduction to the History of Science*, II, pt. 1 (Baltimore, 1927–1948), 355–361; Y. A. Sarkis, *Mu'jam al-maṭbū'āt al-'arabiyya wa al-mu'arraba . . .*, I (Cairo, 1928–1931), 108–109; H. Ritter and S. Dederig, eds., *Das biographische Lexikon des Ṣalāḥaddīn Ḥalīl Ibn Aibak aṣ-Ṣafadī*, II (Istanbul-Damascus, 1931–1970), 114–115; Ibn al-'Imād's *Shadharāt al-dhahab fī akhbār man dhahab . . .*, IV (Cairo, 1931–1932), 320; C. Brockelmann, *Geschichte der arabischen Litteratur* (Leiden, 1943–1949), supplement I (Leiden, 1937–1942), 604, 833; H. P. J. Renaud, *Les manuscrits arabes de l'Escorial, décrits d'après les notes de H. Derenbourg*, II (Paris, 1941); *Publications de l'École Nationale des Langues Orientales Vivantes*, 5th ser., 91–92; 94–95; 'A. M. al-'Aqqād, *Nawābiḥ al-fikr al-'arabī, Ibn Rushd: Ibn Rushd al-ṭabīb*, Dār al-Ma'ārif, ed. (Cairo, 1953), 96–112; *Kh. al-Ziriklī, al-A'lām . . .*, 2nd ed., VI

(Cairo, 1954–1959), 212–213; L. Nemoy, "Arabic Manuscripts in the Yale University Library," in *Transactions of the Connecticut Academy of Arts and Sciences*, XL (New Haven, 1956), 160 (n. 1513); F. X. Rodríguez Molero, "Averroes, médico y filósofo," in *Archivo Ibéroamericano de Historia de la Medicina*, 8 (1956), 187–190; S. Muntner, "Averrhoes (Abu-el-Walid ibn Ahmed ibn Rushd). Le médecin dans la littérature hébraïque," in *Imprensa Médica* 21, 4 (1957), 203–208; 'U. R. Kaḥḥāla, *Mu'jam al-mu'allifin* . . . , VIII (Damascus, 1957–1961), 313; Š. el-Munajjed, "Mašādir jadida 'an tārikh al-ṭibb 'ind al-'arab," in *Majallat Ma'had al-Makḥṭūṭāt al-'Arabiyya*, 5, 2 (1959), 257 (ns. 66–68); R. Walzer, *Greek into Arabic. Essays on Islamic Philosophy*, Oriental Studies, I (Oxford, 1962), 26–28; S. Hamarneh, "Bibliography on Medicine and Pharmacy in Medieval Islam. Mit einer Einführung Arabismus in der Geschichte der Pharmazie von Rudolf Schmitz," in *Veröffentlichungen der Internationalen Gesellschaft für Geschichte der Pharmazie*, e.V., n. s., 25 (1964), 92; S. Hamarneh, *Index of Manuscripts on Medicine, Pharmacy, and Allied Sciences in the Zāhiriyya Library* (Damascus, 1969), 175–178; A. Dietrich, "Medicinalia Arabica. Studien über arabische medizinische Handschriften in türkischen und syrischen Bibliotheken," in *Abhandlungen der Akademie der Wissenschaften zu Göttingen*, 3rd series, no. 66 (1966), 99–100 (n. 39); J. C. Bürgel, "Averroes. 'Contra Galenum.' Das Kapitel von der Atmung im Colliget des Averroes als ein Zeugnis mittelalterlich-islamischer Kritik an Galen, eingeleitet, arabisch herausgegeben und übersetzt," in *Nachrichten der Akademie der Wissenschaften in Göttingen*, 1 (1967), 9, 263–340; A. Z. Iskandar, *A Catalogue of Arabic Manuscripts on Medicine and Science in the Wellcome Historical Medical Library* (London, 1967), 37; B. S. Eastwood, "Averroes' View of the Retina—a Reappraisal," in *Journal of the History of Medicine*, 24 (1969), 77–82; A. Amerio, "Spunti di rinascimento scientifico negli averroisti latini del XIII secolo," in *Med. Secoli*, 7 (1970), 13–18, refs.; M. Ullmann, *Die Medizin im Islam*, Handbuch der Orientalistik, supp. 6 (Leiden-Cologne, 1970), 166–167; R. Y. Ebied, *Bibliography of Mediaeval Arabic and Jewish Medicine and Allied Sciences*, Wellcome Institute of the History of Medicine (London, 1971), 107–108.

On Ibn Rushd's life and philosophical thought, see the following: L. Gauthier, *La théorie d'Ibn Rochd (Averroès) sur les rapports de la religion et de la philosophie* (Paris, 1909), with bibliography; and *Ibn Rochd (Averroès)* (Paris, 1948); M. Grabmann, *Der lateinische Averroismus des 13. Jahrhunderts und seine Stellung zur Christlichen Weltanschauung* (Munich, 1931); R. de Mendizábal Allende, *Averroes, un andaluz para Europa* (Madrid, 1971); F. W. Muller, *Der Rosenroman und der lateinische Averroismus des 13. Jahrhunderts* (Frankfurt, 1947); S. Münk, *Mélanges de philosophie juive et arabe* (Paris, 1859), 418–458; G. Quadri, *La filosofia degli arabi nel suo fiore*, II (Florence, 1939); and *La philosophie arabe dans l'Europe médiévale* (Paris, 1947),

198–340; E. Renan, *Averroès et l'averroïsme* (Paris, 1852; repr. 1949); and K. Werner, *Der Averroismus in der Christlich-peripatetischen Psychologie des späteren Mittelalters*, new ed. (Amsterdam, 1964).

RUSSELL, BERTRAND ARTHUR WILLIAM (*b.* Trelleck, Monmouthshire, England, 18 May 1872; *d.* Plas Penrhyn, near Penrhyndeudraeth, Wales, 2 February 1970), *mathematical logic*.

The Russell family has played a prominent part in the social, intellectual, and political life of Great Britain since the time of the Tudors; Russells were usually to be found on the Whig side of politics, with a firm belief in civil and religious liberty, as that phrase was interpreted by the Whigs. Lord John Russell (later first earl Russell), the third son of the sixth duke of Bedford, was an important figure in nineteenth-century politics: He was a leader in the struggle to establish the great Reform Act of 1832, held several high offices of state, and was twice prime minister in Whig and Whig-Liberal administrations. His eldest son, known by the courtesy title of Viscount Amberley, married Katherine Stanley, of another famous English family, the Stanleys of Alderley. The young couple were highly intelligent and were in strong sympathy with most of the reforming and progressive movements of their time, a stance that made them far from popular with the conservative section of the aristocracy. Unhappily, neither enjoyed good health; the wife died in 1874 and the husband in 1876. There were two children, Frank and Bertrand, the latter the younger by about seven years.

The Russell family did not approve of the arrangements made by Viscount Amberley for the upbringing of the two children in the event of his death. When this occurred, the boys were made wards in chancery and placed in the care of Earl Russell and his wife, who were then living at Pembroke Lodge in Richmond Park, a house in the gift of the Crown. Bertrand's grandfather died in 1878, but his grandmother lived until 1898 and had a strong influence on his early life.

Like many Victorian children of the upper class, the boy was educated at home by a succession of tutors, so that when he entered Trinity College, Cambridge, as a scholar in 1890, he had had no experience of communal life in an educational establishment save for a few months in a "cramming" school in London. At Trinity he was welcomed into a society that for intellectual brilliance