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(*b.* before 1200; *d. ca.* 1235)

*astrology, popularization of science, translation of scientific and philosophical works from the Arabic.*

Almost all information about Michael's life and work is uncertain; his posthumous fame as a wise or wicked magician bred legends and was increased by them. Although imaginative scholars have established undocumented traditions, no satisfactory analysis—linguistic, stylistic, or doctrinal—of writings ascribed to him has been carried out. It is thus impossible to determine the accuracy of many attributions.

**Life** . Michael's place of birth and details of his family are unknown. His appointment to an Irish archbishopric suggests that "Scot" meant, as it often did, "Irish"; his refusal on the ground of ignorance of the vernacular does not support this suggestion but does not exclude it. He was given benefices in England and Scotland with no explicit residence requirements; there is no sign that he lived in either place at any time. Nowhere in his geographical and meteorological works does he show any special interest in those countries or knowledge of them, and nothing points to English being his [mother tongue](#). The ten Anglo-Saxon names of months that he mentioned are found in Bede; there might just be a nostalgic element in his words referring to the "Anglici" as beginning the year on Christmas night and flocking to their main churches on the first day of every month with offerings while the bells ring festively. Otherwise his examples, topical anecdotes, and descriptions give a more prominent position to several other countries than to Britain.

The date of Michael's birth can be guessed with a vague approximation by considering that he produced a translation about 1217 and that by early 1236 he was dead. The insistent recommendations for benefices in the mid-1220's suggest that he was then still young with a precocious interest in learning. It may well be that he was not born before 1195. In 1217, or not long after, Michael was in Toledo and had perhaps acquired some knowledge of Arabic. It was there that, with the help of Abuteus (or Andreas) Levita, a Jew later converted to Christianity, he translated a work of al-Bitrji and—with or without help—some Aristotle from the Arabic. He may also have learned some Hebrew. In 1220 or 1221 he was staying in Bologna in the house of the widow of one Albertus Gallus; while there he had the opportunity to examine and describe in detail a tumor of the womb. By 1224 Michael was a priest and was addressed as "magister" by Pope Honorius III, who obtained for him benefices in Britain and appointed him to be archbishop of Cashel, Ireland; for the latter see he was also recommended by the pope to King [Henry III](#). He renounced the appointment as archbishop and was given further benefices by [Stephen Langton](#), archbishop of Canterbury, at the instance of Honorius III and of [Gregory IX](#) (1225 and 1227). Nothing is known of Michael's university studies: his references to Paris and to some teaching he had done may indicate that he had been there, as either a student or teacher or both. In 1228 [Leonardo Fibonacci](#) of Pisa sent a revised copy of the *Liber abaci*, which Michael had solicited. The date 1231 occurs in one manuscript of a poetical prophecy on the future of many towns in northern Italy, requested by Bolognese dignitaries and ascribed to Michael in the later part of the century by the Parma chronicler Salimbene and by many manuscripts. It is probably to this prophecy that the poet Henry of Avranches referred when writing around the beginning of 1236 to Emperor Frederick II; Henry noted that Michael, who had predicted the fate of others, had himself succumbed to fate.

In his writings Michael presented himself as a highly regarded scientific companion and consultant to Frederick II, the most faithful among astrologers. It is as "astrologer to the emperor" that he is often referred to by Salimbene and other writers. No state or other documents survive to confirm or disprove the truth of this title; nor is it clear whether it would imply a regular attachment to the court. No doubt Frederick would have welcomed Michael's contribution to his scientific knowledge. Michael's dedications to him probably represent more than pleas or thanks for moral and social support; his skill in astrological forecasts may have been very welcome to an intelligent ruler who was not above putting some trust in this kind of "science" and to a shrewd politician for whom favorable prophecies had an undeniable propaganda value. Before the middle of 1232 Michael had dedicated to Frederick II his translation of Ibn Sīnāina's treatise on animals. This is the only definite date concerning his relationship with the emperor. The dedications, introductions, and contents of his astrological works—taken together with Henry of Avranches's remarks—suggest that the relationship had been neither trivial nor brief in the last years before Michael's death. But it is reasonable to assume that Michael was not depending on Frederick II when, from 1224 to 1227, he relied on the papal curia's support for an income from British benefices or, perhaps, when he was dedicating to Stephen of Provins a translation of Aristotle's *De caelo* with commentary of [Ibn Rushd](#) (Averroës); in 1231 Stephen was in a key position to decide on the introduction and study of approved texts of Aristotle in the University of Paris.

There is not much evidence for assessing Michael's standing with his learned contemporaries, apart from Frederick's interest, [Leonardo Fibonacci](#)'s complimentary words, and the formal praises contained in the papal recommendations. The two first philosopher-scientists to express views on him after his death, Albertus Magnus and [Roger Bacon](#), were scathing about his scientific knowledge and honesty, although Bacon recognized his merit in having introduced some Aristotle and [Ibn Rushd](#)

into the Latin West in the early 1230's. What fame, praise, and blame he was accorded later were the result of his reputed magic powers, and the variety of scientific and astrological information presented in his treatises—especially, perhaps, the systematic section on the generation of human beings (book I of his *Physionomia*), which gained great popularity in the late fifteenth and the sixteenth centuries.

It may be that [Roger Bacon](#) hit on the one activity for which Michael deserves a place in the history of serious philosophical and scientific speculation. It was through his efforts that some of Ibn Rushd's commentaries on Aristotle came into circulation in Latin and led the way to a penetrating analysis of fundamental problems, such as those of the eternity of the world and the immortality of the soul; they also provided models of methodical interpretation of Aristotle's texts on sound, objective bases. It may also be that Bacon was right when he minimized Michael's linguistic achievements. There is no clear evidence of what his share was in producing the translations ascribed wholly or partly to him. The collaboration in this work by other interpreters, such as Abuteus, may have been much greater than just occasional help. The only research—and that very limited—made on Michael's method of translating suggests considerable inaccuracy, systematic changes in style between one work and another, and occasional recourse to existing Latin translations for increased ease and reliability.

**Works . Translations.** Al-Bīrjī's *In astrologia* (as given in a manuscript) or *De sphaera* (both these titles correspond to the Arabic *Fi 'l-hay' at*) or *De motibus celorum circularibus* (the title given by Roger Bacon) is preserved completely or incompletely) in eleven manuscripts, all of the fourteenth or fifteenth century. The translation was made with the collaboration of Abuteus and was finished in Toledo on 18 August, probably in 1217 (other, less likely, years are 1207 and 1221). Michael took over long passages of Ptolemy, included by al-Bīrjī in his work, from [Gerard of Cremona](#)'s translation of the *Almagest*. The *In astrologia* made accessible in Latin some recent Spanish-Arabic learning (the original Arabic text was finished about 1190). In it an attempt was made with the use of new mathematical methods to revive Aristotle's cosmology of concentric spheres as against Ptolemy's system of epicycles and eccentrics. The translation had a certain success, as use of it by Roger Bacon, Grosseteste, Pseudo-Grosseteste, and Albertus Magnus in the thirteenth century testifies, and as the several manuscripts of the next centuries confirm.

Aristotle's *De animalibus* (*Histaria animalium*, *De partibus animalium*, *De generatione animalium*), a literal translation made at Toledo, possibly before 1220, of the ninth-century Arabic version by Ibn al-Bitriq, is preserved in more than sixty manuscripts of the thirteenth and early fourteenth centuries. It exerted a considerable influence, mainly through Albertus Magnus' exposition and elaboration. It may have been used by Frederick II, but was soon superseded by William of Moerbeke's translation from the Greek (*ca.* 1260) and later—at the time of printing—by Theodore of Gaza's version (*ca.* 1475). It has been suggested, on the basis of two short references by Michael and an attribution in a manuscript, that he produced a complete translation of the *Nicomachean Ethics* from the Greek, of which book I (*Ethica nova*) was widely circulated and other sections or fragments still survive.

Ibn Sīnā's *De animalibus* or *Abbreviatio de animalibus* was the relevant part of the philosophical encyclopedia *Shifa*. The translation was dedicated to Frederick II, who used it in the preparation of his *De arte venandi*; it is preserved in thirty or more manuscripts of the thirteenth and early fourteenth centuries, some of which derive from the 1232 copy of the volume presented to the emperor.

Of Ibn Rushd's commentaries on and expositions of Aristotle's works, only the first one listed here was certainly edited by Michael, the second quite probably, the others with a smaller degree of probability, *Great Commentary on the De caelo*, with Aristotle's full text; a preface addressed to Stephen of Provins, mentioning the translation of al-Bitruji's *In astrologia*, was written after 1217. Thirty or forty manuscripts still exist; and the work was often quoted by the Latin commentators and philosophers from the thirteenth to the sixteenth centuries. *Great Commentary on the De anima*, with the full text, is preserved in more than fifty manuscripts, three or four of which give Michael as the translator. This version was also translated into Hebrew in the fifteenth century. *Great Commentary on the Physics* is available with full text. At least the prologue, and possibly the whole work, was translated by Theodore of Antioch; only a few manuscripts of the more than fifty extant suggest Michael as the author of the translation. Suggestions of Michael's authorship of the following have no documentary support: *Great Commentary on Metaphysics* with the full text, I. 1–4, II–X, XII, extant in fifty manuscripts (in another sixty there is only Aristotle's text, under the name of *Metaphysica nova*, by which title it is quoted in the commentary on Sacrobosco's *Sphaera* ascribed to Michael), *Expositions (Middle Commentaries) of Meteorologica IV* (twenty manuscripts), *De generatione et corruptione* (forty manuscripts), and the *Epitome of Parva naturalia* (fifty manuscripts).

**Original Writings.** A trilogy, consisting of the *Liber introductorius*, *Liber particularis*, and *Physionomia* (*De secretis nature, including a section De urinis*), is presented by Michael as a unit in a general foreword addressed to Frederick II after the middle of 1228; but the unity does not go further than that of a collection of independent treatises, each of which seems also to lack a definite unity of its own, even though each has an introduction. It appears that Michael collected those of his writings that he thought might interest the emperor, whatever their state of elaboration, and started preparing a volume to be presented to him. This work seems never to have been completed, since the epilogue mentioned in the foreword is nowhere to be found and the manuscript tradition—all later than about 1270—is too varied in form and content to suggest its dependence on a properly edited text.

The *Liber introductorius* is preserved in four manuscripts, each of them differing in many respects from the others and some of them containing later interpolations. It is divided into four sections and is said to have been written at Frederick's request. It is meant to be a compendium of astrological, scientific, and general lore extracted from the works of many authors and enlarged

with some personal observation. It is directed to beginners and written in a simple style. The main matters dealt with are astronomy, partly mixed with and partly distinguishable from what may be more properly called astrology, including a systematic treatment of the individual heavenly bodies, their spheres, and their movements; general geography and meteorology (the five main zones of the earth, the climes of the northern temperate zone, the seven regions of the air—that is, dew, snow, hail, rain, honey, laudanum, manna); the tides, including a “new” theory based on the mixture of cold influx from the moon and hot influx from the sun; and some descriptive geography, unsystematic and poorly informed. Other matters discussed at some length concern medicine (advice on food, on how to cure mental states with the help of enchantresses and divines); music; the calendar; important numbers (especially the number seven); and some theology. Altogether there is little more than a collection of secondhand, blindly accepted, information; occasionally there is an assessment of the views of other authorities (for instance, on the distance of the heavens from earth) or an exposition of contradictory doctrines that suggest a critical approach to a problem, indications that scientific inquiry must be applied to research on the terrestrial paradise, hell, and purgatory, some incidental information on things seen, habits of and differences between people of different races, reports of simple experiments made by him and the emperor, and some of his predictions. His sources range from the Bible and Ptolemy to al-Farghani, Abu Ma’shar, and the *Toledan Tables*. From what has been published so far it is not clear whether Aristotle and Ibn Rushd have been put directly to use, and if so, to what extent.

The *Liber particularis*, a shorter book, is intended to supplement with a fuller and more advanced treatment some of the things expounded for “novices” in the *Liber introductorius*. All that this second book includes is to be “new” but necessary for a better acquaintance with the grand science: “He who has assimilated both books will have qualified for the title of new astrologer.” According to Haskins, these additions concern mainly the reckoning of time; sun, moon, and stars; winds and tides; and various meteorological questions. Compared with the *Liber introductorius*, it is based more extensively on an Italian background and on Latin authors like Isidore of Seville, and on Aristotle’s meteorological theories. The last part of the *Liber particularis* is the most interesting, for it contains a large number of questions purporting to have been put to Michael by Frederick II, together with his answers. Frederick had heard enough about the sun, moon, fixed stars, elements, world soul, pagan and Christian peoples, creatures moving on earth, plants, and metals; he now wanted to hear about the more inaccessible things leading to spiritual enjoyment and wisdom: paradise, purgatory, and hell; what supports the earth, the abyss, the heavens; the relationships and relative distances between the heavens; where God dwells and what angels and saints do in front of Him; where fresh and salt waters come from; how volcanic eruptions and sulfur springs come about. The answers are less interesting than the questions, and provide little more than known facts or pseudo facts, apart from some information on specific volcanic phenomena in Italy and some attempts to explain them; one chapter, alchemical in character, deals with metals and would seem not to belong among the answers to Frederick’s questions.

The third part of the trilogy is preserved in three or four manuscripts. The title *Physionomia* fits little more than half of it; *De secretis nature*, in its vagueness, is more appropriate. The contents of this part are at least threefold. Most of what appears as book I in the printed editions contains a detailed treatise on generation of human beings, with anatomical and physiological descriptions, information on the best time for conception, on sexual behavior, and on the state of the fetus during each of the nine months after conception. The rest of book I deals with differences between genera and species of animals. Books II and III contain the *Physionomia* proper (apart from some chapters on dreams and auguries from sneezes). In these, a systematic survey of the different parts of the body, in connection with the basic or other qualities affecting them, is meant to show how souls are intrinsically dependent for their natures on the bodies that they inhabit: “animae sequuntur corpus.” Book III is particularly concerned with showing that such parts of the body as hair, forehead, eyes, nails, and heels, if properly studied, can inform one of the virtues and vices of men and women. A section not included in the printed editions of the *Physionomia*, but published by itself, contains the short treatise *De urinis*.

*A Commentary on Sacrobosco’s Sphaera* is ascribed to Michael Scot in the two old printed editions and—with some doubts—in the recent one, but it is anonymous in the two manuscripts containing some parts of it. Thorndike suggested that its twenty-eight “lectiones” somehow reflect a course of lectures. Whether authentic or not, this work is an important document belonging most probably to Michael’s time. The following authors and works are the only ones mentioned or quoted, and none of them was unknown in Latin before Michael’s death: Aristotle (*Physica*, *De caelo*, *Metaphysica* [*Prima philosophia*], *De generatione et corruptione*, *Meteorologica*, *De anima*, *De sensu*, *Analytica posteriora*), pseudo-Aristotle (*De plantis* *De proprietatibus elementorum*), Plato, al-Farghānī, Euclid, Boethius, Ibn Sīnā, Ibn Rushd (*De substantia orbis*, *Commentary on Metaphysics*), Theodosius of Bythina (*Spherica*), and Mercurius (*De vita Deorum*): the method followed in the work is also consistent with the habits of that time.

The *Questiones Nicolai peripatetici* contains a few discussions on physical, chemical, and physiological topics, similar to those of the trilogy. They were ascribed to Michael by Albertus Magnus, who condemned them as rubbish, and are preserved, without the author’s name, in several manuscripts. Six fragments from a *Divisio philosophie*, quoted as coming from a work by Michael in Vincent of Beauvais’s *Speculum doctrinale*, contain a definition of philosophy, the basic classification into theoretical and practical sciences, and some account of two of the former sciences: mathematics and metaphysics. One of the sources of these fragments is Dominicus Gundissalinus; others are found in Arabic texts.

The *Ars alchemie*, preserved in three manuscripts (two of them containing additional material, perhaps spurious), was designed to reveal the “secret of philosophers.” In it metals are assimilated to planets, both classes being studied in their special natures; the transformation of Venus into the sun, of mercury into silver, and of lead into gold, and the nature of salts are the other main topics discussed in this treatise. The *Lumen luminum* may be one of the forms, perhaps the basic one, in which the *Dedalus grecus*—a work translated from the Arabic—has been preserved. It contains an alchemical and descriptive study of salts. A

*Geomantia*, ascribed to Michael in one manuscript, has never been studied. Together with a short text, of *Experimenta necromantica*, which appears under his name in another manuscript, it completes what is known of Scot's or pseudo-Scot's more fanciful writings on the margins of science and magic. The few lines of the *Description of a Tumor* and two *Recipies* ascribed to him are all we have of his medical texts; and the *Vaticinium* (the prophecy in verse of 1231, mentioned above) is the only "prophetic" text, apart from the few passages of this kind in the *Liber introductorius*.

*A Theorica planetarum* the *Ten Categories in Theology*, and the *Mensa philosophica* (the last printed under Michael's name and constituting a handbook of dietetics and of characterization of people, with many references to Latin authors known only after Michael's death) are probably to be ascribed, respectively, to [Gerard of Cremona](#), John Scot Eriugena or one of his followers (being perhaps extracts from the *De divisione naturae*), and an anonymous author of the sixteenth century.

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