

parts of animals. Insects are imperfect animals, lacking blood and not breathing. They are spontaneously generated from slime, rotting vegetation, putrefying water, or from other animals, as beetles from an ass, bees from a bull, and wasps from the carcass of a horse—for which Caspar cites Aristotle's *History of Animals*, V, 19; then soon turns to zoophytes. In the book on the soul, sleep-walking is spoken of, and dreams are classified as divine, diabolical, animal and natural. Animal are those which repeat works with which man is occupied or on which he is intent. Natural are from affection of bodies, temperament, incursions of humors, and the like. If dreams are causes or signs of the future, it is easy to conjecture something from them. But if they are merely accidents of future things, then they are deceptive.

A *Systema physicum* by Caspar Bartholinus in 1628 is presumably an enlargement or revision of his *Enchiridion physicum* of 1625.¹¹⁹

The Philosophy, embracing metaphysics and physics, of Raphael Aversa of San Severino, professor of theology, who died in 1657 in his sixty-eighth year, appeared at Rome in two volumes in 1625 and 1627 and was expressed in the form of the discussion of various questions.¹²⁰ The first volume is very abstract and adheres closely to Aristotle. Concerning it we may note further only that the discussion of chance, fortune and fate¹²¹ has nothing about monsters, which word is also not found in the index of either volume. Turning to the second volume and the 31st question as to the *Mundus*, we find Aversa asserting that the world was created by God from nothing, that it could not be from eternity, that God could reduce it to nothing again, but that as a matter of fact it will endure to eternity, although the motion and influence of the heavens will cease, the action of the elements and generation will stop, and men will have another state.¹²²

¹¹⁹ *Systema physicum ex auctoris genuinis partim editis partim non antehac editis libris sequenti pagina indicatis coagmentatum*, 1628, in-8, 197, 874 pp. Listed by Niels Nielsen, *Matematiken i Danmark, 1528-1800*, Copenhagen, 1912, p. 14. For the location of copies of the *Systema* in

Germany, see *Deutsches Gesamtkatalog*.

¹²⁰ *Philosophia metaphysicam physicamque complectens quaestionibus contexta . . .*, Rome, 1625, 1627, 2 vols. Copy used: BM 1136.1.27.

¹²¹ *Ibid.*, I, 397 et seq.

¹²² *Ibid.*, II, 26-39.

Another question is whether there are other heavens beyond that of the fixed stars. Ptolemy and others added a *primum mobile*. Thebit, Alfonso X, and others added yet another called crystalline. Theologians posit an empyrean heaven. Aversa contends that it is not necessary to suppose other mobile heavens beyond the fixed stars, because their varied movements are the only reason for such an hypothesis and Scripture says nothing of such heavens. But Aversa accepts the empyrean heaven as the seat of the blest and holds that the heavens are solid because the Bible talks of the firmament. This leaves the problem of explaining "how with a solid heaven and without distinction of heavens and orbs and without penetration or scission, all the movements of the planets and appearances can be saved," and Aversa makes a feeble attempt to solve it by substituting zones for spheres of the planets, citing Tycho Brahe repeatedly. Although most of his astronomical variations thus far have been motivated by the Bible, he denies that there are true elementary waters above the heavens and holds that the heavens are incorruptible. The new stars of 1572 and since were made *de novo* by an accidental change in the heavens.¹²³

But the question whether comets are celestial phenomena Aversa answers in the negative, holding that the argument from parallax can be turned against those who answer in the affirmative, and accordingly postpones further consideration of them until he comes to meteors.¹²⁴

Heavens and stars are probably composed of matter and form but possibly are simple bodies. In any case they are of a different matter from inferiors and are not animated by a soul as form, and are not moved intrinsically but by Intelligences. This assumption of several heavens moved by Intelligences seems inconsistent with his previous hypothesis of one solid heaven without distinction of heavens and orbs. Now he says that whether the heavens differ from each other in matter as well as form is uncertain. At any rate they do not possess elementary qualities, nor true colors, and they make no sound.¹²⁵ Aversa has been citing Kepler and Galileo as well as Tycho, but he refuses to accept Galileo's explanation of sun-

¹²³ *Ibid.*, 52-89.

¹²⁴ *Ibid.*, 91-100.

¹²⁵ *Ibid.*, 103-9, 147, 119, 135-37.

spots or his statement that the moon receives some light from the earth, because for the earth to illuminate a celestial body would evidently be to invert the order of the universe. Instead he suggests that it is illuminated by reflexion from adjacent parts of the heavens.¹²⁶ The fixed stars do not seem to receive their light from the sun.¹²⁷

Aversa asserts more than once and in very emphatic terms that the heavenly bodies rule and govern these inferiors.¹²⁸ "So all the theologians and sacred doctors teach and holy Fathers, and it is expressly stated in many passages of Scripture."¹²⁹ He thinks that this action is limited to the planets and fixed stars, and that the heavens which contain them do not operate upon inferiors, but, like Abra de Raconis, he discusses the question whether the empyrean heaven does.¹³⁰ The heavenly bodies act upon the earth not only by their light and motion, which latter "is the condition by which the celestial bodies distribute their operations in these inferiors," but also by occult virtues and influences. "Living beings which are generated without propagation . . . seem to be made by the sky itself as principal cause."¹³¹ Here again he seems to contradict his previous position that the heavens containing the stars and planets do not act upon inferiors. He goes on to make the usual caution and qualification that the stars act upon man only by way of inclination and not compulsion. But this does not prevent his concluding that from the stars and other causes, if well noted, corporeal effects can be predicted.¹³²

Descending to inferior bodies, Aversa accepts the traditional four elements, with fire next to the heavens, and three regions of air. Water forms one globe with earth which is at rest at the center of the world. Indeed, the earth is somewhat higher than the water, and Aversa contends that Holy Scripture does not teach that the water is higher than the earth, nor that it is kept from overflowing the earth by a standing miracle, nor that rivers have their origin from the sea. Although a frequent caption has been, "Certain

¹²⁶ *Ibid.*, 154-60, 169-71.

¹²⁷ *Ibid.*, 173.

¹²⁸ *Ibid.*, 114; 174, "Sed plusquam certum et evidens est absolute loquendo vere et realiter corpora caelestia in

haec inferiora operari . . ."

¹²⁹ *Idem.*

¹³⁰ *Ibid.*, 176, 178-81.

¹³¹ *Ibid.*, 181-87, 195-97.

¹³² *Ibid.*, 201, 205.

passages in Aristotle are explained," he rejects the view which he attributes to Aristotle that one unit of earth will make ten of watery earth than water.¹³³

From the elements Aversa turns to generation and corruption, quantity and quality, place, motion and rest. Aristotle is represented as saying that natural motion is swifter at its end, violent motion in the beginning, and that of *proiecta* midway; but by *proiecta* he meant the movement of animals.¹³⁴ Aversa asserts that the acceleration of falling bodies is not because the medium offers less resistance as the motion progresses but because the medium impels it down more, the more it falls. In the case of violent motion, however, he rejects Aristotle's explanation and adopts the impetus theory, although he grants that the air may aid somewhat.¹³⁵

Coming to comets again, he states that their supposed effects seem utterly groundless naturally, but that they may be divine signs. The principal cause of stones and metals, on the other hand, is the celestial bodies. The transmutation of metals is difficult but not impossible.¹³⁶

Passing on to *De anima*, Aversa argues that the internal senses are really one and not multiplex.¹³⁷ Some things can be divined from natural dreams, but this kind of divination is so weak and fallacious that it is to be regarded as almost nil. Physiognomy considers impressions in the body which indicate internal forces. Imagination by commotion of the humors indirectly produces such impressions on its owner's own body, but not on another body except in the case of the foetus.¹³⁸

In 1626, the year between the appearance of Aversa's two volumes, Johannes Rodolphus Faber, a Jesuit of Grenoble, published a *Cursus Physicus*.¹³⁹ In the preface he states that in years past he

¹³³ *Ibid.*, 207-37.

¹³⁴ Aristotle was usually represented as holding that the violent motion of projectiles increased in velocity at first.

¹³⁵ *Ibid.*, 358-59, 371-76.

¹³⁶ *Ibid.*, 423-24, 493, 496, 498.

¹³⁷ *Ibid.*, 731-39.

¹³⁸ *Ibid.*, 756-57, 768-70.

¹³⁹ *Cursus physicus in quo totius philosophiae naturalis corpus . . . explicatur*, Geneva, 1626, in-8, 496 small pp. and Index. Copy used: BM 536. b.6.