Roger Bacon's Communia Naturalium*: A 13th-Century Philosopher's Workshop* edited by Paola Bernardini and Anna Rodolfi

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Roger Bacon (1214/1220–1292) is predominantly known to historians of science for his contributions in the fields of optics, medicine, and astronomy. However, he was also an important philosopher, very well trained in many aspects of Aristotle's thought and with a special interest in natural philosophy.[1] He not only taught Aristotle's *Physics* (the standard scholastic textbook of natural philosophy) at an early stage of his career as Professor of Philosophy at the University of Paris (*ca* 1235–1240) [Delorme 1935], he also returned to this subject later in his life and devoted to it an independent treatise, entitled *Communia naturalium*, a more mature work written between *ca* 1260 and 1270. As Bacon declares in the prologue to the *Comm. nat.*, his intent in this treatise is to give a science *de communibus naturalibus*; that is, a general science about natural things which deals with aspects common to all of them, as contrasted with a special science which deals with some particular aspects.

Regarding the Aristotelian sources of such a general natural science, Bacon maintains that these include not only the *Physics* but also Aristotle's *De caelo* and the zoological treatises (*De animalibus*) [Steele 1911, 3–5]. In accordance with this general program, the *Comm. nat.* not only deals with the fundamental topics from Aristotle's *Physics* (such as matter, form, nature, the four causes, motion, infinity, place, the void, and time) [Steele 1911, 50–239], it also contains a very extended section on the generation of natural things (both living and non-living) [Steele 1911, 240–308] and a whole book on

[1] The overview of the modern scholarship on Bacon given by Jeremiah Hackett 2015 is the most updated and comprehensive introductory study on this thinker.

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celestial bodies [Steele 1913]. Thus, Bacon's approach to natural philosophy in the *Comm. nat.* is much more comprehensive than that of Aristotle's *Physics*.

Furthermore, although the influence of Aristotle's philosophy is so pervasive that the *Comm. nat.* can be classified as a work of Aristotelian natural philosophy, it also contains very significant non-Aristotelian elements; the most notable one is a doctrine of natural agency based on the emission of intentional species from the agent and their propagation through a medium [Steele 1911, 16–49]. Because of both its range and the originality of its approach and contents, it is clear that the *Comm. nat.* is the fundamental source for the study of Bacon's own view on natural philosophy and, more generally, a very important document of the medieval reception of Aristotle's natural philosophy.

The *Comm. nat.* was edited by Robert Steele in the series *Opera hactenus inedita Rogeri Baconi* more than a century ago.[2] It has remained, however, largely unstudied until the present time. Actually, the collection of essays under review is the first comprehensive publication devoted specifically to the *Comm. nat.* It is a very commendable pioneering work, which focuses on a selection of important issues and offers an in-depth study of each. Although it is far from filling the gap in the scholarship on the *Comm. nat.*, it makes a promising first step in that direction.

With the exception of Jeremiah Hackett (a world-leading expert on Bacon), the contributors to the volume are Italian scholars of medieval philosophy who share a methodological approach characterized by a careful reading of the primary sources and great attention to the historical context of the medieval philosophical debates, but who have different research topics. This combination of common methodology and different specific areas of competence greatly adds to the scholarly value of this collection, since it has made it possible to put together a collected volume that covers a good variety of topics and at the same time deals with them in a uniform language. Furthermore, this group of scholars worked as a team in preparation of this volume; it originates from a reading and research seminar on *Comm. nat.* held at SISMEL (Florence) in the years 2009–2011, in which they all took part. This is the kind of collaborative enterprise that should be encouraged in the investigation of complex medieval works like the *Comm. nat.* The result in the present case is a contribution of first-class quality.

[2] The first book of the treatise appeared in 1911 and the second in 1913.

Because the material presented in this collection is largely unstudied, the reader will find it useful to have a short description of the contents of each of its eight essays.

In an introductory essay, Chiara Crisciani and Michela Pereira give an extensive account of what the two-year reading and discussions of the *Comm. nat.* have identified as the main general quality of this work: its being a 'philosophical workshop' or 'intellectual laboratory', which, as they explain, is

> a container, in which ideas and intellectual needs of Roger Bacon were elaborated and compared to materials of the philosophical tradition and contemporary debates. [5]

The two authors present a number of features of the *Comm. nat.* in support of this general assessment. They rely especially on the prologue to the *Comm. nat.*, in which Bacon outlines his project/program, and they compare this program with its actual implementation in the two books of the *Comm. nat.* Although a full appreciation and evaluation of many aspects of the account by Crisciani and Pereira are difficult to achieve without a good preliminary knowledge of the *Comm. nat.* (as well as of other works by Bacon), the authors succeed in conveying even to a non-specialist reader a clear sense of the kind of intellectual enterprise that Bacon embarks on in this treatise.

In the second essay, Roberto Lambertini and Romana Martorelli Vico examine the textual tradition of the *Comm. nat.* There is only one complete manuscript copy of this work, a Parisian manuscript (M) used by Steele as the base text for his edition, and two other manuscripts—an Oxford manuscript (D) and a London manuscript (F)—transmitting only a fragment of the text. On the basis of an accurate textual comparison of F and D with M, the two scholars conclude that there are differences between these manuscript-copies that cannot simply be explained by the standard channels of textual transmission within a unitary tradition. Rather, they point to the existence of different versions of the text. The working hypothesis formulated by the two scholars is that the two fragmentary manuscripts, D and F, actually transmit earlier stages of the development of the text whereas the complete copy, M, transmits a later one. In their view, these different stages should be interpreted as the result of Bacon's constant effort to improve his text by adding or removing passages and rewriting some sentences. Thus, the *Comm. nat.* displays not only a philosophical laboratory but also a textual one.

In the third essay, Crisciani discusses Bacon's view on the relationship between universals and particulars, a subject to which Bacon devotes a small treatise within the *Comm. nat.* [Steele 1911, 92–107]. Crisciani offers a detailed presentation of this treatise, which shows that Bacon is indeed a realist about universals, that is, Bacon believes that they have extra-mental reality but also stresses the priority (in several senses) of the individual over the universal and the inseparability of the universal from the individual. Crisciani then singles out for a more in-depth investigation the epistemological aspects of Bacon's thesis of the priority of the singular over the universal. One such notable aspect is that, according to Bacon, while a singular cannot be known through a universal, a universal can be known through a singular in which it is embodied. Crisciani also remarks that—in comparison to earlier treatments of this issue—in the *Comm. nat.*, Bacon emphasizes the epistemological priority of the singular. She concludes that Bacon's emphasis is due to the fact that this epistemological priority provides the best justification of the *scientia experimentalis* as the true science, a view to which Bacon was strongly committed at the time of the *Comm. nat.*

The following two essays are about the notion of matter, a central one in Aristotelian natural philosophy and one to which Bacon himself devotes a great deal of attention in the *Comm. nat.* [Steele 1911, 50–91]. The first of the two essays, by Anna Rodolfi, mainly deals with the notion of prime matter, which is the most proper kind of matter in Bacon's view. According to his definition, this is the kind of matter that is a constituent of every composite substance, being the counterpart of the formal components of such a substance: prime matter is what remains when every form is removed from a substance. Bacon supports the thesis of universal hylomorphism, according to which every created substance, be it terrestrial or celestial or spiritual, is a composite of prime matter and form. Thus, in his view prime matter is present everywhere in the created world. As Rodolfi rightly underlines, it is because of his adherence to universal hylomorphism that Bacon distinguishes prime matter from what he calls natural matter, that is, matter in the Aristotelian sense as a principle of natural change. Rodolfi then focuses on the question of the ontological status that Bacon ascribes to prime matter. Like others of his contemporaries, Bacon maintains that prime matter has an actuality of its own, which makes it a genuine reality in itself, but an actuality that does not derive from a form, given that prime matter lacks any form. While prime matter is indeed in potency to any form, it does not

follow from this that prime matter is pure potentiality because there is a kind of actuality that does not depend on a form. Thus, an essential ingredient of Bacon's account of prime matter is the divorce of actuality from form, which is a remarkable departure from the Aristotelian metaphysical framework. Rodolfi also gives a very lucid overview of other important issues related to prime matter, like God's knowledge of prime matter and the conditions of its creation by God, its unity and plurality.

The second of the two essays, by Pereira, deals with the notion of natural matter, that is, the kind of matter that is a principle of natural change and thus exists only in terrestrial substances (those subject to generation and corruption). One important preliminary issue to which Pereira devotes great attention is the complex way in which Bacon draws the distinction between prime matter and natural matter. Bacon's approach to this issue is highly metaphysical, being based on a sort of descent in the ladder of creation from prime matter viewed as a metaphysical and most general genus, through various ontological degrees, to natural matter, which lives at the level of sublunary bodies (from the elements to man), an approach analogous to that of the Hebrew philosopher Ibn Gabirol. Pereira then focuses on Bacon's conception of natural matter as something active and apt to operate, which is a clear departure from Aristotle's notion of matter. She convincingly argues that it is Bacon's interest in alchemical practice and theory that stimulated or fostered this non-Aristotelian view.

In the sixth essay, Paola Bernardini examines Bacon's position in the 13th-century debate about the creation of the human soul [Steele 1911, 281–302]. While at that time there was common agreement that the intellectual faculty of the human soul is produced by God, the controversial issue was that of the coming into being of the lower faculties of the human soul (the vegetative and sensitive faculties). The question was whether these faculties are also created by God together with the intellect (co-creation of all the human faculties) or whether they preexist and survive the divine creation of the intellect and come about by natural causes, so that only the intellect is created by God. Bacon rejects the view of the co-creation of all human faculties and sides with the opposite view that only the intellect is created by God. Bernardini gives a concise presentation and assessment of Bacon's arguments against the thesis of co-creation in the *Comm. nat.* She then deals extensively with some doxographical questions and proposes tentative identifications of the

English theologians and philosophers to whom Bacon refers in support of his view as well as of the polemical target of his discussion.

The seventh essay, by Cecilia Panti, deals with Bacon's discussion of the continuity of physical bodies in the second book of the *Comm. nat.* (the book on celestial bodies) [Steele 1913, 309–322]. Although the Aristotelian thesis that physical bodies are continuous was almost universally accepted at Bacon's time, Panti points out that Bacon has a special motivation for providing the strongest possible arguments in its support. Indeed, physical continuity is required for the action of radial species, which is a fundamental ingredient of Bacon's non-Aristotelian view on natural agency. Bacon believed that the strongest arguments in support of continuity come from geometry. Panti gives a detailed presentation and assessment of Bacon's appeal to one of these geometrical arguments, the so called 'proof of the square' (taken from the Arabic philosopher Al-Ghazali), which aims to show that the hypothesis of the composition of magnitudes out of indivisibles leads to the absurd conclusion that the side and the diagonal of a square have equal length.

The eighth and last essay, by Jeremiah Hackett, deals with Bacon's discussion of motion and time in the *Comm. nat.* [Steele 1911, 138–182]. The author addresses the question of the dating of this discussion and, on the basis of a careful comparison of it with those in other works by Bacon (*Opus majus*, *Opus tertium*, *Opus minus*), he suggests that it may have been written at a late stage in the composition of the *Comm. nat.* (after 1268). He points out that this late dating has implications for the relevant context of Bacon's discussion in the *Comm. nat.*, which should be looked for in the theological debates on these issues at the University of Paris during the late 1260s. In the second part of his essay, Hackett gives a helpful presentation of the content of Bacon's account of time and motion in the *Comm. nat.*

Many other important issues are discussed in the *Comm. nat.* that are not covered in the present collection of essays, and a great deal of further work is required to fill in the gap in the scholarship. The present volume, however, provides an excellent model for future investigation into this very rich and complex material.

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