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This *Oxford Handbook* examines the radical transformation of worldview taking place in the period from the middle of the 16th century (from the publication in 1543 of Copernicus' *De Revolutionibus*) to the early 18th century (the years immediately before Hume and the Enlightenment). The intention of the volume is to cover both well-known and undeservedly less well-known philosophical texts by placing these works in their historical context which includes tight interconnections with other disciplines (e.g., experimental science) as well as historical and political events. By proceeding in this manner the editors hope to recover a meaning of "philosophy" that comes closer to the way its early modern proponents would have understood and practiced it. The editors also point to the reader-friendly character of this *Handbook*: in addition to grouping chapters in five categories (metaphysics; the mind; epistemology; ethics and political philosophy; and religion), cross-references to chapters or pages dealing with the same (or similar) issues make it possible for readers to consult the book selectively. Due to space constraints, in the remainder of this review I propose to take advantage of this feature and briefly look at the articles by Peter R. Anstey, R. W. Serjeantson, Stephen Gaukroger, Paul Russell and Steven Nadler.

The volume opens with Peter R. Anstey's "Essences and Kinds" tracing the development of an account of essence *solely* in terms of corpuscular structure. From Descartes through Boyle and culminating in Locke, Anstey presents, chronologically and systematically, the rejection of the notion of substantial form used by the Scholastics to explain the unity of an object's properties, the consistent behavior of the object as well as the generation of members of a species.

Although Descartes never fully develops his view of essence, Anstey interprets thought and extension, Descartes' principal attributes of substances, as the only essences, in stark contrast to the multitude of Scholastic-Aristotelian essences. Despite its increased parsimony and explanatory power, the Cartesian theory of essences cannot accommodate the notion of species; thus our commonsense intuition that certain things naturally pertain to the same category remains unaccounted for. Also, Descartes was interested in but unable to solve the problem of animal generation which will prove problematic for Boyle and Locke as well.

Unlike Descartes, Robert Boyle explicitly criticizes the Scholastic substantial forms for their "lack of explanatory adequacy and ontological economy" (18). Boyle's rejection of substantial forms relies heavily on empirical, natural philosophical arguments viewed as supporting the superiority of the corpuscularian theory of qualities. For Boyle, essence equals corpuscular structure; species membership is determined by "the same group of essential qualities which arise from the same or similar underlying structure" (22). Boyle seems to vacillate between defining *form* in terms of either phenomenal qualities or underlying micro-structure.

Many Boylean elements come to fruition in Locke. Anstey reads Locke as proposing a constrained and convergent conventionalism about natural species: there are species in nature, “stable, corpuscular concretions distinguishable into kinds that are not reducible by any known form of analysis” (24). However, nature is in fact a continuum of creatures, from the lowest to the most perfect; the boundaries between species are fuzzy and indeterminate.

Following Boyle, Locke distinguishes between real and nominal essence. Real essences are the inner constitutions or corpuscular structures of material objects; these structures cause the object’s perceptible properties. Nominal essences are clusters of simple ideas produced by the sensible qualities of objects. Species are denominated by their nominal essences but the more qualities we discover, the closer our nominal essences come to the real constitution of objects and the better our taxonomies become. Anstey concludes that the theory of essence as corpuscular structure was historically the most influential, despite its shortcomings and despite Leibniz’s return to Scholastic substantial forms.

Although the rejection of substantial forms is one of the hallmarks of the “new” way of doing philosophy and science, most thinkers of the early modern period still countenanced the existence and importance of the *human* soul. R. W. Serjeantson traces the changes in the accounts of what it means to be human from the Renaissance to the 18th century. By combining a chronological with a systematic criterion, Serjeantson identifies several stages in the treatment of the issue of “soul”: the natural philosophical treatises of the late Renaissance; the metaphysical and epistemological approaches of the early modern period (mainly those of Descartes and/or inspired by him) and the concurrent physiological treatments. Then, moral and political philosophical positions are surveyed starting with Hobbes and ending with the Enlightenment.

Systematically the path identified in this chapter seems to go from positing three types of soul (vegetative, sensitive, and rational explaining growth, sensation, and the grasping of universals, respectively) to allowing only one, rational type of soul (dubbed “mind” by Descartes). Then, even this sole remaining soul gets thinned out by relinquishing more and more of its functions to the body (as a result of physiological approaches). Finally, there are also reductive attempts for understanding the soul in exclusively materialistic terms (e.g., Hobbes who, following Gassendi, construes the understanding in terms of the corporeal imagination). Next Serjeantson brings to light Hobbes’ importance for the natural law tradition of Pufendorf and Grotius which, in turn, stands at the beginning of the 18th-century historical and political science of *human nature* (as opposed to the prior emphasis on the *soul*).

For early modern philosophers, knowledge-acquisition is one of the main functions of the rational soul while mathematical knowledge has a prominent place resulting in the mathematization of science. In “Picturability and Mathematical Ideals of Knowledge”, Stephen Gaukroger focuses on transparency (usually unpacked in visual terms as “picturability”) as one of the conditions for good demonstrations according to early modern thinkers. Gaukroger’s aim is to “explore the role of picturability in mathematical demonstration in the 17th and 18th centuries and use this for shedding light on the general question of the role that picturability places in cognitive grasp” (339).

It would first appear that in terms of picturability geometry ranks first due to its frequent use of diagrams and figures. However, Descartes favors his algebra as more transparent (it provides clearer access to how the conclusion is generated), more general (since applicable to several kinds of problems) and heuristically more powerful (it allowed Descartes to find solutions to problems that had baffled ancient geometers such as Pappus' four-line locus problem). Despite these advantages, transparency and abstractness pull in opposite directions and Descartes' inability to resolve this tension spelled the demise of his new analysis.

Subsequent thinkers struggled with the same tension and proposed different solutions to it as the case of infinitesimal calculus illustrates. Leibniz sided with abstractness and heuristic power while abandoning the requirement of transparency. Newton, on the other hand, chose transparency, rejecting the use of infinitesimal calculus in favor of limit-based proofs. The latter supply reference and meaning stemming from geometrical interpretation: at no stage of the demonstration do geometrical techniques stop referring to anything.

Leibniz's calculus purports to provide a type of abstract, knower-independent knowledge. It is supposed to be a tool which, like microscopes and telescopes, greatly enhances our cognitive abilities. However, since we are unable to establish the reliability of calculus by double-checking its functioning (the way we would that of microscopes and telescopes), Leibniz asks of us that we trust calculus *blindly*. Gaukroger notes that this ultimately means that calculus is ungrounded: "We are left with a pragmatic rationale: calculus delivers the results, though we are unable to understand how it does this" (359).

Gaukroger's article dealt with the use of understanding in mathematics; let us now turn to willing, the other main mental function of the rational soul as traditionally conceived. In "The Free Will Problem" Paul Russell traces to Hobbes some of the main compatibilist arguments and motifs prominent in the works of 20th-century philosophers such as Schlick, Hobart, Ayer, and Smart. Russell shows how Hobbes' views are developed in opposition to Bramhall's incompatibilist position, which was based on Aristotelian assumptions. It is a mistake, claims Russell, to read Hobbes as proposing a type of simple compatibilism (433), one that would easily fall prey to criticisms such as the liberty objection.

The liberty objection refers to the need for *true liberty*, a type of freedom that would be both necessary and sufficient for moral responsibility and would allow us to set apart moral agents from non-moral ones (such as children and madmen). (Russell's) Hobbes is a sophisticated compatibilist for whom freedom does amount to voluntariness, but this is *not* the distinguishing feature of moral agents. Moral agents make themselves members of the moral community by means of deliberate acts of consent expressed through speech. In this way, agents use the power to will which they share with the rest of nature (i.e., with animals, children and madmen) but which cannot be so employed by everyone in nature. On Russell's interpretation Hobbes holds, contra Bramhall's incompatibilism, that freedom is a necessary but not a sufficient condition for responsibility.

Russell concludes that Hobbes provides us with a third alternative between an implausible incompatibilist position which needs to posit God-like powers in order to distinguish

between moral and non-moral agents, on the one hand, and a compatibilist view which seems stuck with a mechanical (since shared with the rest of nature) kind of freedom. Hobbes' solution lies in his deflationist account of the role of free will in responsibility and a contractualist position on morality: while freedom is the same across the whole natural realm, humans use it to verbally consent to membership in civil society. This gesture sets limits to their natural right to everything and binds them to moral (civil) laws.

The problem of free willing provides a nice transition to the related issue of divine agency. In "Conceptions of God" Steven Nadler identifies and characterizes three main ways of conceiving God in the 17th century: the rationalist God (of Leibniz and Malebranche), the voluntarist God (of Descartes and Arnauld) and Spinoza's God. All these three conceptions attribute to God eternity, necessity, and infinitude and see Him as the ultimate causal power behind all things: but they differ greatly in their way of conceiving *how* God actually acts. Nadler shows that the deeper issue at stake when it comes to endorsing any of these three conceptions is whether humans can understand God by using themselves as templates. Leibniz and the proponents of the rationalist God seem to endorse the medieval (Suarezian) thesis of the univocity of (or analogy between) humans and God, while Descartes explicitly rejects it.

Although God's essence remains hidden from us, for Leibniz there is a sense in which we can conceive of God because He acts for ends viewed as good and selects the best means for achieving those ends. By contrast, Nadler argues, Descartes' God remains in the deepest sense unintelligible, as shown by Descartes' treatment of the eternal truths: *everything* depends on God: this includes the laws of logic, metaphysics, mathematics and even standards of value (truth and goodness).

As for Spinoza's God, it is "thoroughly conceivable, but only because of [Spinoza's] reductive naturalization of God and refusal to model God's power on human agency" (546). God or Nature comprises "the most general natures of things (Thought and Extension) and the universal causal principles and laws embedded in these" (537–8). Spinoza's view is characterized by an extreme anti-anthropomorphism and strict, geometrical determinism. Nothing could have been otherwise than it is since all things proceed necessarily from the very essence of the one, single, infinite, and eternal substance.

The Oxford Handbook of Philosophy in Early Modern Europe is a well-organized collection of clearly and engagingly written papers by leading scholars in the field. Although impressive in its own right (560 pages), this anthology keeps things succinct, making it easier to navigate by comparison with other books of this type available on the market. Relatively uniform in length (approximately 20 pages), most articles are surveys of their respective topics. The editors' acknowledgement of the inevitable limitations of such a volume notwithstanding, a wide variety of topics relevant for giving the reader an overview of the status of philosophy in Early Modern Europe are covered. Particularly noteworthy are the chapters on the relations between instruments (be they physical, logical, mathematical and/or epistemological) and knowledge acquisition. Another feature which makes this *Handbook* stand out is the editors' decision to dedicate a whole section to natural law views and emphasizing their diversity, both in terms of number as well as internal differences.

To conclude, this volume represents a welcome addition to the literature on the history of early modern philosophy and it will prove useful for advanced undergraduate and graduate students as well as for early modern scholars. It lives up to the editors' hope of providing a broader, more inclusive picture of early modern philosophy and of suggesting new questions for historians of philosophy to pursue.

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