

The Ontology of Artifacts in the Long Middle Ages: An Introduction

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What is an artifact? What distinguishes artifacts from natural things? What is the difference between artifacts and social constructs? As the world we live in is becoming increasingly artificial, questions about the ontological status of artifacts are being fervently debated in contemporary philosophy (see Preston [1] for a detailed account of contemporary debate).

It is often claimed that the modern era is inseparable from a new way of conceiving the physical universe and the place of human beings in nature. Prior to the modern ambition of ‘conquering nature’ and the alliance between experimental science and technology, the Middle Ages witnessed technological inventions and social transformations that deeply influenced the divide between nature and art and culture (see Lagerlund and Roudaut [2]).

Although many studies have been devoted to the concept of nature in the Middle Ages, no comprehensive study has been dedicated to medieval reflections on the status of artifacts (an exception to this is Majcherek [3]). However, the status of artifacts is a frequently discussed theme in medieval philosophy. Situated at the center of a number of different, related problems, it is of primary importance in understanding the new conception of the world that eventually arose at the dawn of the modern period. Indeed, artifacts represent a topic that was classically discussed in relation to the definition of nature. Since an artifact is—by definition—a non-natural object, medieval discussions around the status of artifacts reflected the evolution of the categories of motion, finality, and intentionality that were part of the concept of ‘nature’.

The intellectual framework specific to the Middle Ages in the West meant that artifacts had a somewhat ambiguous status. Philosophically speaking, the heavy influence of Aristotle on theories regarding artifacts was responsible for the often-adopted distinction between nature, having an inner principle of motion and rest, and art, having deviated from its natural tendency due to the activity of an external agent. This distinction was, in itself, already sufficiently vague as to stimulate controversies among Aristotle’s interpreters. In particular, what exactly does the expression ‘principle of motion and rest’ mean? In what sense are artifacts devoid of such a principle? In what sense are they units, and how does this unity differ from the unity of natural things?

Aristotle’s observations in the second book of *Physics* concerning cases like spiders’ webs or doves’ nests provided opportunities to deepen the criterion for differentiating art from nature. According to Aristotle, these cases do present some resemblance to artifacts resulting from human activity, but, due to the inability of these animals to produce anything else on the basis of habits, training, or deliberation, they cannot be counted as artifacts. These examples, however, opened the door for reflections on the exact cognitive processes (desire, instinct, knowledge, or deliberation) occurring at the level of animal cognition in such cases and, indirectly, contributed to spelling out the precise conditions under which something may be said to be an artifact.

Another important problem left unresolved by Aristotle’s remarks on artifacts had to do with their exact ontological status or, in technical terms, their categorical definition.



Citation: Lagerlund, H.; Roudaut, S.; Åkerlund, E. The Ontology of Artifacts in the Long Middle Ages: An Introduction. *Philosophies* **2024**, *9*, 101. <https://doi.org/10.3390/philosophies9040101>

Received: 4 July 2024

Accepted: 5 July 2024

Published: 9 July 2024



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While it was clear that Aristotle wanted to distinguish art from nature, the exact status that he granted artifacts was far from meeting this distinction. The passages scattered in his writings hinting at the ontological nature of artifacts did not make completely explicit whether artifacts should be considered as *substances* or *accidents*, to the extent that scholars today are still divided on this point. For once, despite the obscurity of Aristotle's statements on this matter, medieval thinkers generally agreed on considering artifacts as accidental wholes, i.e., as less fundamental than the substances from which they were made, on the basis that artifacts were mere reconfigurations of material substances arranged by human beings. Thus, according to the generally accepted view in the Middle Ages, not only were artifacts sharply distinguished from the realm of nature, they were also viewed as lacking the robust status of the basic components of reality, namely, substances.

In the story of medieval theories of artifacts, however, Aristotelianism was not the only important factor. The monotheistic doctrines underlying medieval philosophical writings often appealed to the image of God as a craftsman to illustrate the way in which everything in the world—including what we take to be 'nature'—is, in a sense, comparable to an artifact created by God. In the Western tradition, this image was by no means new, as it was already present, for instance, in Plato's *Timaeus*, a text available to medieval thinkers in the Latin tradition and also known in the Arabic-speaking world.

In the Middle Ages, however, the belief in an all-powerful God having created everything gave this analogy another meaning. The idea of a craftsman causally responsible for everything, including the very matter from which things were made, was hard to picture—so hard, in fact, that philosophers and theologians disagreed on the best image to choose. In the Latin tradition, Augustine (354–430) describes God as using centuries of human history as scaffolds for building His city (*Sermons*, 362). While Boethius (ca. 480–524) compares God to a physician and to a sower (*De consolazione philosophiae*, I, 5–6; III, 9), Eriugena (ca. 800–877), in his *De divisione naturae*, favors the analogy of a weaver (*Patrologia Latina* CXXII, 616C; 619D–620A). In medieval writings, nature itself was sometimes characterized as a tool or an intermediary cause to describe divine creation using an artifactual model. For instance, in *Anticlaudianus*, following the allegorical fashion typical of many 12th-century philosophical productions, Alain of Lille (ca. 1116–1203) personifies Nature as a blacksmith engineering the making of the sensible world as we see it, an analogy directly taken up in John of Meun's famous *Romance of the Rose* (ca. 1275–1280).

This influence of a theological dimension specific to the theme of artifacts explains the ambiguous status that artifacts held in the Middle Ages. Seen as something alien to nature and endowed with a rather low ontological status, artifacts also conveyed an image of God's activity, although humans' own creativity and productivity were in no proportion comparable to divine agency.

However, moving forward in time, the beginning of the 17th century witnessed a remarkable push to erase the distinction between art and nature. Thinkers like René Descartes and Francis Bacon denied any essential difference between human-made mechanical devices and natural beings (see, for example, Brown and Normore [4], as well as Brown's article in this volume). A new tendency to consider natural things themselves as mere arrangements of material parts toward the end of the Middle Ages contributed to blurring the distinction between artificial and natural things and led to a new approach to these concepts. Even though not everybody agreed with the radical conclusions reached by Descartes or Bacon, their ideas were representative of a general tendency to revise what had been, during the Middle Ages, so sharply distinguished, i.e., art and nature.

How did this happen? What are the different factors that explain such an important change in how the divide between nature and art was framed?

The studies gathered in this volume strive to provide some answers to these important questions by focusing on philosophical problems connected to the ontology of artifacts in the 'Long Middle Ages', i.e., up to the beginning of the 17th century. Under this scope, aesthetic and axiological issues regarding the beauty, value, and significance that medieval thinkers attributed to artifacts have not been included. It is not that these issues are absent

from medieval discussions or are of lesser philosophical importance—far from it. Rather, our focus on the ontological problems raised regarding artifacts is intended to offer a coherent overview of a precise set of problems that generated vivid discussions in the Long Middle Ages, while remaining partially distinct from other types of aesthetic considerations related to human art. Further study, which this volume will hopefully prompt, is needed in order to investigate the exact relation between these ontological discussions and the evolution of theories regarding beauty and values.

For the present, a brief overview of some of the main ontological problems typically discussed in the selected period will give the reader a taste of the questions, theses, and arguments that they will meet in the contributions presented here. The questions most commonly addressed by medieval philosophers—especially in the Late Middle Ages—have to do with the definition of artifacts and the conditions that an object must fulfill in order to be counted as an artifact. It was clear to medieval philosophers that an artifact must be the product of an activity of some kind, but the exact nature of this activity was subject to debate. What were the necessary features that an action performed by a craftsman must have in order to produce an artifact? The general assumption was that an artifact was produced by a violent motion performed by an intentional agent on the basis of deliberation. This violent motion was often assumed—but not without controversy—to be a *local* motion, according to the Aristotelian classification of motion. Indeed, in the case of alteration (motion in the category of quality), the behavior of qualities (heat, coldness, wetness, dryness) cannot have deviated from their natural course.

The insistence on local motion as the essential contribution of the craftsman to the making of an artifact leads to tricky cases and raises interesting questions. Think about cooking, for instance. A baked cake can be considered as an artifact without too much difficulty, but if only local motion plays the role of the craftsman's essential contribution to this artifact. An important part of its creation (the mixing of the ingredients by heating them) seems to come from the natural behavior of the qualities present during the process (heat and wetness, in this example). The craftsman's contribution seems to consist merely of combining the cake's ingredients in the right place and conditions. In the Late Middle Ages, similar questions were raised about the exact role of human agents in the production of artifacts. For instance, there were questions about alchemists' productions, as alchemists were believed to produce new substances, but only in a sort of assisting role with respect to Nature's operations. Other tricky cases concerning the exact role of human agency in the production of things normally not found in nature included animal hybrids (such as the breeding of mules) and plant grafts.

Directly connected to this first type of condition necessary in defining an artifact was the problem concerning the material required for it. A principle repeated over and over in medieval discussions about artifacts stated that a differentiating feature between human craft and divine creation was the fact that God created everything from nothing, i.e., He created not only the shape and other characteristics of things but also their *matter*. Human craft, in contrast, only transforms or reconfigures matter; it does not create it. As it is, this principle seems clear enough. When it comes to investigating in detail the types of artificial objects it leads to including or excluding, however, the principle appears to be more problematic than it might seem at first glance. The philosopher Juan Celaya (ca.1490–1558), for instance, notes that an artifact must be a real thing composed of matter and form existing outside of the soul, as, otherwise, volitions, vices, and virtues would be artifacts (*Expositio in libros Physicorum Aristotelis*, II, q. 2). However, Celaya does not consider the objection that, unlike the moral habits that he mentions, many actions of the soul also take place in the body and in physical reality, without being necessarily considered as artifacts, or that arguments could be made that, strictly speaking, artifacts are not really composed of matter and form (see Papandreou's contribution).

In fact, houses and tables were the most popular examples in the Middle Ages when it came to discussing artifacts; it was uncommon to consider the singing of a song to be an artifact. The precise dividing line between the internal or immanent operations of the soul,

which did not hold the status of an artificial object, and full-fledged material artifacts, such as tables and houses, was not so easy to draw, since many *external* operations of an agent seemed to meet the aforementioned criteria of materiality and externality without being viewed as artifacts. Following Aristotle's remarks about the 'formal cause' of artificial objects, the role of the intention or 'form' present in the craftsman's mind was often key to this definitional problem and served to distinguish proper artificial objects from other external actions (see Pelletier's contribution in this volume).

This point leads us to a noteworthy comment about what medieval thinkers would typically consider artificial objects, e.g., houses, tables, chairs, and statues. The familiar things typically discussed in the Middle Ages would not strike the reader as particularly original. In fact, there was, in the Middle Ages, no talk about abstract objects, systems of beliefs, languages, or cultural institutions as artifacts. Admittedly, the semantic resource of artifacts as analogies for thinking about abstract objects was present throughout the Middle Ages. For instance, William of Conches (ca. 1090–1155) compared the dialectician to a blacksmith (as reported by John of Salisbury in *Metalogicon*, III, 10), Thomas Aquinas (ca. 1225–1274) saw the metaphysician as an architect of knowledge (*Summa contra Gentiles*, I, c. 1), and Augustine had already compared science to a 'machine' (*machina*) of charity (*Letter* 55). However, it is difficult to find evidence of serious consideration of ideas, mental constructs, or higher-order cultural objects as real artifacts. Only the end of the period covered in this volume would witness the emergence of references to political institutions as artificial things, a time when the art/nature distinction would eventually collapse (see Brown's contribution). This sole observation tells of the importance of the shift that eventually took place in the way in which the divide between nature and art was framed in the Middle Ages.

Among the questions raised by medieval thinkers about artifacts, what may be considered the most fundamental, the most surprising for modern readers, and the most interesting for contemporary metaphysicians concerned the *reality* of artifacts. This question became exceptionally important from the 14th century onward in the Latin West, but it was, in fact, present all along in medieval philosophical history. Since the word 'reality' did not have the meaning in the Middle Ages that it eventually acquired in the modern era, some words of explanation are required. The basic question was whether an artifact was a thing (*res*, hence 'reality') on top of, or distinct, from the natural things that it was made from. According to thinkers such as John Duns Scotus (ca. 1265–1308) or Walter Burley (ca. 1275–1344), two of the most important realists in terms of artifacts (but not necessarily in terms of universals or categories), the answer was 'yes', whereas nominalists toward artifacts, such as William of Ockham (ca. 1287–1347), refused their reality (see Majcherek's contribution on this point).

Different strategies were employed by realists to defend their view. One of these relied on the notion of *figure* or *shape*. Since an artifact consists of the reconfiguration of some parts of matter by a human agent, proving that the shape realized in matter (for instance, the shape of a statue) is, in a sense, a thing distinct from the material parts from which it was made can serve as an argument proving that the artifact itself is a thing, on top of these parts. But are shapes or figures really distinct from their material components? This question, hotly debated in discussions on artifacts, involved other problems connected to the reality of quantity and relations and their distinctness from natural substances.

The problem concerning the reality of figures or shapes was itself intimately related to mereology and to the more general issue of whether wholes represented more than their parts. Saying that a figure was not reducible to the mere sum of its material parts seemed to entail a realist stance on wholes as something real existing on top of their parts. This point had direct implications for the ontology of artificial objects. Medieval philosophers were aware of the classical problem of deciding whether a statue, for instance, represented more than the matter it was made from. This problem was all the more important since the statue was Aristotle's favorite analogy for illustrating his hylomorphic doctrine, i.e., the view that all natural things were composed of matter and form. But medieval discussions went

further than merely interpreting Aristotle using his own terms. In the scholastic context, in particular, the refinement of the philosophical vocabulary had reached such a level that views much more subtle than Aristotle's could be expressed, to solve the paradoxes of 'material constitution', as they are called today. Saying that the shape of a statue was the *form* of its matter was, of course, Aristotle's way of using the hylomorphic doctrine to explain that a statue was, in a precise way, distinct from its matter. However, the distinction between what medieval thinkers called 'substantial forms' and what they called 'accidental forms' represented a more complex typology of forms that made it possible to better specify the exact nature of an object such as a statue. Similarly, the distinction inherited from Boethius between integral (or quantitative) parts and essential parts (matter and form) made it possible to more precisely elucidate the sense of the concept of 'part' in which a statue represented more than its matter, which could be considered part of it. However, even within the scholastic tradition, deeply rooted in Aristotle's hylomorphic doctrine, many thinkers refused to admit that a whole may be said to be distinct from its parts (see Arlig's contribution on Peter Abelard in this volume). In fact, the highly complex conceptual apparatus proper to the Middle Ages, far from definitively settling the disputes on artifacts, instead made these discussions even more convoluted.

Another strategy for defending the reality of artifacts was to appeal to the concept of motion. In parallel to the ontology of artifacts, much was written on the reality of the phenomenon of motion. An interesting link between the two topics is that, when understood as a real thing, motion could be employed to prove that artifacts were 'real' in the sense specified above. Indeed, as already mentioned, it was commonly accepted in the Middle Ages that a necessary condition for artifacts to exist was the production of motion by an agent who, through this motion, brought about a new configuration of matter. Now, something real would likely produce real effects. If, then, motion was a real thing, it must also have had real effects, including artifacts, in the case of violent motions impressed onto matter. To respond to this realist argument, a nominalist strategy employed by, for instance, William of Ockham was again used to deny the reality of motion altogether.

However, from this overview of the debates over the reality of artifacts, the reader should not form the false impression that there were only two clear-cut camps—the 'realists' vs. the 'nominalists'. For one thing, these two labels can only be found in the later stages of these controversies, where their exact reference is not always clear and easily identifiable. One should keep in mind, therefore, that these terms are, most of all, part of our modern grid of interpretation and should be treated with caution for this reason. Moreover, between the two extremes of realism and nominalism, many thinkers were attracted to finding a 'middle way', and, as might be expected due to medieval thinker's taste for finely nuanced distinctions, some of them sought to avoid this dichotomy and to attribute a special ontological status to artifacts (see Åkerlund's contribution in this point).

These are but a few examples of the controversies surrounding the ontology of artifacts, which, as can be seen, was a topic with deep connections to a wide range of philosophical problems.

In the final part of this introduction, we will provide a brief summary of the articles in this Special Issue. These will be presented in rough chronological order.

Marilù Papandreou's article, "A Byzantine Metaphysics of Artifacts? The Case of Michael of Ephesus' Commentary on Aristotle's *Metaphysics*", includes the first study of the problems surrounding artifacts in the medieval Byzantine tradition. She devotes her article to the study of Michael of Ephesus' (d. 1129) commentary on Aristotle's *Metaphysics*. His commentary provided an ontological interpretation of artifacts as accidental beings, i.e., as matter that acquired a mere property as opposed to a substantial form. This is ontologically a realist position, but it is also different from that of Aristotle and is more in line with Alexander of Aphrodisias' view, as Papandreou shows.

The second article is by Andrew Arlig and has the title, "Abelard and Other Twelfth-Century Thinkers on Social Constructions". Arlig explores Peter Abelard's (1078–1142) treatment of artifacts in *Dialectica* and also addresses the views of some of his contempo-

aries. Abelard seemed to want to uphold a distinction between natural things and what he called the production of art, language, and thought, but the implications of his view seem, instead, to suggest that this distinction is blurred. He also seemed to end up believing in the extreme position wherein humans could only move around objects created by God and not really produce anything new, that is, in a position that Arlig calls ‘fictionalism’. Arlig also argues that 12th century thinkers, influenced by Abelard, seemed to accept Aristotle’s distinction half-heartedly. The distinction was, hence, much less clearly formulated at that time, and Arlig compares this with how some neo-Aristotelian thinkers today see the distinction.

In the third article, “Getting Real: Ockham on the Human Contribution to the Nature and Production of Artifacts”, Jenny Pelletier develops Ockham’s view on artifacts. Not unlike Abelard, Ockham also blurs the distinction between nature and art found in Aristotle. An artifact for him was nothing over and above its appropriately ordered parts. Unlike Abelard, however, Ockham thought that artifacts were real objects produced by an artist through a real change in the world. Pelletier shows how the efficient and final cause of the artifact is supplied by the human artist. These two causes are necessary in explaining what artifacts are and how they come to be.

The fourth contribution is “The Medieval Problem of the Production of Art” by Kamil Majcherek. It addresses what he calls the problem of the production of art, which, in this context, has an ontological meaning in the sense of how the products of art can be real things, unlike in Abelard’s view. Majcherek deals with both so-called realists and nominalists of artifacts and their view of this problem.

The fifth contribution to this Special Issue is an article by Sylvain Roudaut entitled, “Clocks, Automata, and the Mechanization of Nature (1300–1600)”. He aims to show how artifacts like clocks became a model for the new mechanistic account of nature. Roudaut argues that the rejection of the Aristotelian distinction in the seventeenth century by thinkers such as Francis Bacon or René Descartes was merely the end-product of a development that began in the fourteenth century and had the example of the mechanical clock at its center.

In the sixth article, “Suárez Minimalist Realism of Artifacts”, Erik Åkerlund highlights the contrary opinion of Francisco Suárez (1548–1617). Åkerlund develops what he calls Suárez’s minimal realism with regard to artifacts. Like Thomas Aquinas, Suárez maintained that artifacts constituted an artificial form, but he added, unlike Aquinas, that this form was like a mode. It is highly interesting that Suárez invoked his metaphysics of modes to account for artifacts.

One of the most famous writers on artifacts in philosophy besides Aristotle is René Descartes. In the seventh article, “Nature, Artifice, and Discovery in Descartes’ Mechanical Philosophy”, Deborah Brown shows that perhaps his view is not as straightforward as many have thought. For one thing, the nature/art distinction seemed to cut both ways for him; that is, sometimes something made by an artisan could be natural, and vice versa. Human intervention, for Descartes, was not about creation or production, but about discovery.

The final contribution is devoted to the fascinating seventeenth century philosopher Margaret Cavendish. In his article “A Vitalist Shoal in the Mechanist Tide: Art, Nature, and 17th century Science”, Jonathan Shaheen reconstructs Cavendish’s view of artifacts. She seems to stand out as an anti-mechanist and someone who, in a sense, returned to a more robust medieval/Aristotelian view of artifacts. As Shaheen presents her, she appears not unlike Ockham.

Author Contributions: Conceptualization, H.L., S.R. and E.Å.; methodology, H.L., S.R. and E.Å.; writing—original draft preparation, H.L., S.R. and E.Å.; writing—review and editing, H.L., S.R. and E.Å.; funding acquisition, H.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by *The Swedish Science Council* (grant agreement no. 2019-02777).

Conflicts of Interest: The authors declare no conflicts of interest.

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