

‘Classification’ for the Arts and Sciences in the Early Modern Period

The concept of ‘classification’ seems obvious and benign. To classify is to arrange or distribute according to a system or method, a sense of the word that has not altered since its inception in antiquity. The significance of classification lies not in what it means, but in how it is applied. *How* we classify – according to *what* principles – has evolved and altered over time as our understanding of the world has altered. How we classify also bears directly on important issues in metaphysics. Does the world come ‘pre-carved’ into natural kinds, or is classification merely an arbitrary exercise of human volition? If natural kinds exist, then as we classify we are revealing *truths* about the external world. The development of ideas about classification (and the things classified) has paralleled both scientific and artistic developments in the early modern period.

The Aristotelian Background

To understand the concept of classification in the early modern period, we first must understand the conceptual framework the early moderns inherited from their predecessors. The world prior to 1600 was still largely Aristotelian. ‘The Philosopher’ provided a classification scheme based on matching a basic kind (*species*) with a set of distinguishing characteristics (*differentia*) in order to sort things in the world. Thus a human individual is a rational animal. That is, a human is of the kind animal, but is distinguished from all other animals by rationality. This example reveals an underlying assumption of Aristotle’s system: genuine classification provides *definitions*. When a

thing is properly classified, it is defined. Definition, in turn, relies on the concept of *essences*. An essence is a property a thing must have to be what it is. Thus one might say that being rational is essential to being human; an individual thing is simply not a human if it lacks rationality.

In Aristotle we also find the first division between the arts and sciences. The distinction is modeled on the natural/artificial divide. *Scientia* concerns demonstrable and certain knowledge derived from nature. In nature, things develop according to natural internal principles of change (*entelechies*). Something is artificial if it changes because of an external source – like some clay becoming a sculpture because of a craftsman’s work. Sculptures are artificial because they do not possess internal principles of change. They are what they are because someone or something else altered them. This distinction leads Aristotle to characterize science as an enterprise whose goal is to account for the internal causes or explanatory principles we find in nature. Since this goal is reached by definition (asserting the essences of things), we discover that appropriate classification is in fact *the* scientific enterprise – the process of acquiring knowledge. (See *Posterior Analytics*, Book II, esp. 93a1-10).

Medieval Academia

Building on this Aristotelian foundation, medieval thinkers developed the core distinction between nature and artifice into an academic edifice. The sciences concerned nature. Since God is the author of nature, it follows that not only should we study nature, we also should expect to find regular order and well-defined kinds within it, as would be

consonant with the perfection of the deity. Science is the practice of proper classification by definition. The arts more properly concern *skills*, whether mental or physical. The Latin root *artes* refers to the technical skills needed to produce something, a fact more apparent in the Greek root *techne*, as in our word 'technology.' For the medieval period there is no sense of the 'fine arts.' All art is craft. A painter or sculptor is as much a craftsman as a carpenter or shipwright. The goal of the artist is the technical perfection of their work or trade. (Wittkower p. 14)

Although the sciences were broadly treated and classified in the same way, some innovation occurred in the classification of the arts. In the medieval period we see the division of the arts into those that are 'liberal' (meaning that they are suitable for free citizens) and those that are 'servile' (work that was typically manual and done by slaves). Hence we first find a liberal arts curriculum in the early universities. Students who completed courses of study in grammar, rhetoric, logic, arithmetic, geometry, music, and astronomy were awarded a bachelor of arts. This already implies a division in the arts, since these fields were thought to have redeeming features, whether beauty or intellectual stimulation. Interestingly, many of the fields we now routinely call arts were excluded. Poetry and the visual arts, for instance, were not considered suitable subjects for inclusion. Unlike the other fields, these (and others) were not judged to be *intellectual* arts; competences in these areas were thought to depend on the practice of bodily skills and not on the deepening of mental skills.

The Early Modern Context

In many ways the early moderns were still in the grips of the Aristotelian world view. Descartes, like the Cartesians who followed him, assumes that knowledge is a mathematical mapping of the system or structure of nature. As we come to grips with the order of nature and learn to sort it into kinds, we gain knowledge about it.

Descartes and most of the early moderns preserve the traditional distinction between the arts and the sciences. Science is acquired by the mind; art is a bodily aptitude appropriate to craftsmen. Thus Descartes notes that oratory and poetry are “gifts of the mind” and hence not properly arts at all (Descartes I, p. 114). It is not until the 18th century that a robust separation between the fine and useful arts emerges. Parallel with this core difference between conceptions of science and art, classification within each underwent an increasingly divergent development. This development occurred although one key characteristic of early modern theory of art is that art possesses an essentially intellectual character. Perhaps in response to Cartesian and medieval thinking, advocates sought to establish a place for the arts within the mental realm.

This new development generates some interesting thinking about classification. In both the arts and sciences, classification frequently depended on subject matter. Descartes did not like this method for the sciences, since it emphasized material particularity over mental universality. Thus we find a significant point of departure for classification in the arts and sciences. Genuine knowledge comes from the application of a unified methodology. Hence Descartes argues that it is inappropriate to separate the sciences on the basis of subject matter since quality scientists should be applying a single method of thought in all scientific matters. The arts, however, comprise separate and distinct skills. As a result, the arts should be distinguished, studied and mastered individually. Skilled

craftsmen specialize; skilled intellects universalize. The arts are those intellectual enterprises that also require a practical component; but the latter should not diminish the fact of the former.

Yet as the 18th century unfolds we witness a startling series of innovations in both the arts and the sciences. As the sciences mature our understanding of what it means to classify comes into focus. The arts develop an independent character, and theories of art push thinking about the nature of classification in the arts in new directions.

Early Modern Classification in the Arts

A number of transformations in the arts take place during the early modern period. What constitutes art, how one ought to classify its various subfields, and even how one ought to judge works of arts all undergo bold revisions. The nature and number of the changes is considerable, but it is worth sampling some of the more significant developments.

The concept of *invention* in art (in the sense of a creative process) alters in the period and will ultimately change how people think about what constitutes art. The old view (even espoused by Leone Alberti, an important Italian theorist of art, as late as the 15th century) is that an inventive artist is one that *preserves* tradition, communal values, and accepted ways of thinking. By the 18th century, however, the artist as a solitary figure committed to breaking or superceding traditional norms and artistic methodologies is firmly entrenched. Thus, a new intellectual tool develops for categorizing within art and

for what counts as art. As the humanist movement takes root, artists increasingly redefine their discipline and the standards of quality within their work.

How one identifies and classifies beauty also underwent substantial change as the early modern period unfolded. Prior to the 18th century beauty was an objective feature of things in the world. For the followers of Plato beauty was a transcendental property, a 'Form' in which beautiful things participated. For others beauty was more immanent and empirical, but nonetheless present *in a thing*. Thus classifying things as beautiful depended on isolating features in the objective world. In this sense, classifying objects in the world of art was similar to classifying things in the sciences. The world comes pre-jointed and our task as aesthetes is to learn to recognize those divisions.

Starting with the work of Francis Hutcheson in early 1700s and best displayed in the work of David Hume later in the century, theorists of art shifted the concept of beauty away from an external objective standard to an *internal* standard. This shift did not necessarily signal the abandonment of objectivity in beauty, but it moved the focus of attention away from the natural world to the person making aesthetic judgments. Both Hutcheson and Hume developed theories of 'taste,' theories of artistic sensibilities that classify on the basis of perceiving subjects and not objects.

In a similar vein, the concept of the sublime becomes elevated as an independent kind of experience. The sublime (roughly a lofty, elated feeling), especially in the work of Edmund Burke, becomes a separate class quite distinct from beauty. Interestingly, earlier 17th century discussions of the sublime apply the concept only to certain arts like rhetoric and poetry; no mention is made of the sublime with respect to the visual arts (Barash 70). Jonathan Richardson was one of the first to apply sublimity explicitly to the

visual arts, marking yet another important step in the increasing stratification and complication of artistic categories.

In general the middle of the 18th century witnessed the birth of modern theory of art. In 1750 Alexander Baumgarten published *Aesthetica* and established aesthetics as an independent field studying sensual cognition. Later in the same decade Denis Diderot began publishing his biennial critical reviews of the Salons, effectively launching serious art criticism. With criticism comes classification, not only of quality, but of many other features. We should thus expect that during this time there would be a conceptual explosion of classification in the arts to support all of this innovation in theory of art. We are not disappointed.

Perhaps the most prominent example of this classificatory explosion is seen in the work of Gérard de Lairesse, a Dutch painter and author, who published several lengthy volumes at the inception of the 18th century about the visual arts. After distinguishing art (a production of the mind) from manner (a manual execution of a skill), he divides the arts into various kinds. Though divisions based on the content of what is painted had been already present for centuries, Lairesse is important because he shifts his classificatory scheme from content to modes of representation. Instead of sorting paintings and painters by their pictorial genres (landscapes, still-lives, portraits, etc.), he advocated a system based on how the artist sought to *represent* the content of the work. Kinds of brush strokes and implicit symbolizations become at least as important as the superficial object depicted. Even still-lives could have allegorical meaning, thus altering how we ought to view the nature and kind of the work.

Early Modern Classification in the Sciences

The core problem for the sciences regarding classification during the period concerned how to carve the world into kinds. For instance, while natural philosophers were engaged in debates over how to classify organisms, metaphysicians asked more foundational questions, such as whether there were natural kinds. Did nature come pre-divided into kinds? If so, then the task of science was merely to reveal these ultimate classes. And how might this task best be done? Was it even possible to ascertain nature's 'joints?' Alternatively, if nature does not come to us already divided, what are the implications for the sciences? Independently of whether there are natural kinds, there remains the question as to whether there is an ideal system for sorting individuals. In the history of science we find the key foundational theories for our contemporary system of scientific nomenclature being developed in this period.

The problem of natural kinds remains with us today. The 17th century philosopher John Locke, an anti-realist about species (he did not believe that the world came antecedently divided into distinct species-kinds), argued that in principle we can have no access to the 'real essences' of things and as a result cannot ever hope to know how reality is 'really' divided. Instead, the most for which we can hope is to develop an empirical system of classification based on nominal essences – the names or appearances of things. "...[T]he sorting of things is the workmanship of the understanding." (Locke p. 415) We classify a particular lump of matter as gold because it appears to have the set of properties that we have assigned to the concept of the kind gold. This view was deeply unsatisfying to many, Wilhelm Leibniz in particular. Leibniz argued that nature *had* to

come pre-packaged into kinds and furthermore that we had some empirical (perhaps even *a priori*) evidence as to what those kinds in fact are. What is important about this debate is not its resolution – philosophers continue to argue whether we have one yet – but its impact on thinking about classification generally. This debate helped to liberate scientific thinking from the Aristotelian view of classification as definition. It was no longer deemed sufficient to classify the world by simply positing one or several definitions. How we classify the world into scientific kinds has to obey certain empirical and analytical restrictions.

Much of the work came in response to the practical issue of how best to classify in the emerging sciences. A great deal of urgency was attached to developing coherent systems of classification, especially as human knowledge about the natural world and the variety therein continued to grow. Early modern scientific systems tended to be either artificial (classifying on the basis of convenience for identification) or natural (classifying according to natural kinds). Most of the classification systems in biology during the period were by the ‘habit’ of the kind. So plants were categorized by whether they flowered or whether they produced fruit. Animals were classified by whether they laid eggs or were nocturnal, and so on. The most important development, however, was the application of new rational systems of naming kinds. Carolus Linnaeus, a Swedish botanist, devised the precursor to our present system of nomenclature in the 18th century (although there were some, like Jean Bauhin in the 16th century, who anticipated this system). His system of binomial nomenclature relied on the division between male and female as one of its fundamental kind distinctions (which is no longer used), but his basic

methodology has been adopted as the standard for classification in the biological sciences.

Robert Boyle is an exemplar of early modern thinkers who helped define 'scientific' theories as rational and ordered methodologies. Boyle, now famous for his development of early chemical theories, argued passionately that chemical kinds had to be subject to empirical experimentation. The old chemical categories were deficient precisely because they were not subject to verifiable tests. Boyle further developed the distinction between primary and secondary qualities (though he coined the terms, the concepts can be traced back at least to Galileo), thus preparing the ground for additional scientific inquiry based on a classification of things in nature that were in principle subject to empirical testing. Thus in the debate over *how* to carve up nature into kinds new meta-insights emerged that provided constraints on what sorts of classificatory schemes were acceptable. Even if we cannot know whether we have the particular details right about the kinds we pick out in the world, we nonetheless have a theory of classification that indicates that how we classify is not purely arbitrary.

It is worth noting one issue not addressed by the early moderns but that is fast approaching. All of the reasoning about classification in this period is pre-Darwinian. Phylogenetic systems of classification (those that classify according to evolutionary sequences) do not emerge until later and hence there is no pressure to suppose that there are deep connections *between* the kinds that we pick out in nature. Thus, one of the constraints that will appear after the development of the theory of evolution (that species-kinds might be inter-related in definable ways) is not yet present. But one might speculate that the innovations in theory of classification in the previous century were part of what

made evolutionary theory possible. That there are constraints on what could count as a good system of classification prepares one for additional deep connections in certain fields of inquiry.

Emerging into the 19th Century

By the end of the 18th century one can detect a clear separation between theorizing about classification in the arts and in the sciences. Thinkers preserved in the sciences the ideal of external objectivity but grappled with whether this ideal could be achieved. Most importantly, the scientific community developed theories that preserved the ideal in the face of epistemological shortcomings by positing meta-constraints on what could count as a satisfactory theory of kinds. In the arts, classification shifted away from external objectivity to more subjective and inter-subjective forms of classification. This shift was facilitated by the distinction between the fine and useful arts and more generally by the development of new and separate theories of art. Aesthetics emerges as an independent field of inquiry with its own set of kinds and categories. The early modern period witnesses the development of separate and new ways of classifying in the arts distinct from the sciences.

By the time we reach the 19th century the arts and the sciences are conceived of as separate disciplines with distinct classificatory systems. And as such a new question arises: how are we to determine whether some activity or thing should be classified as science or as art, as scientific or as artistic? Separating art and science by *how* they classify does not entail they use different conceptions of what it means more broadly to

classify at all. In fact, this article has assumed the contrary. Furthermore, separating art and science does not imply that the two domains are utterly distinct. As Leo Tolstoy writes at the close of the 19th century, “Science and art are as closely bound together as the lungs and the heart, so that if the one organ is vitiated the other cannot act rightly” (Tolstoy p. 277).

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Word Count: 3150

Bibliography

Primary Sources

Aristotle, *The Complete Works of Aristotle*. Edited by J. Barnes. Princeton: Princeton University Press, 1984.

Baumgarten, Alexander. *Aesthetica*. Bari: Jos, Laterza et Filios, 1936.

Boyle, Robert. *Selected Philosophical Papers of Robert Boyle*. Edited by M.A. Stewart. Manchester: Manchester University Press, 1979.

Burke, Edmund. *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and the Beautiful*. Edited by J. Boulton. London: Routledge and Kegan Paul, 1958.

Descartes, Rene. *The Philosophical Writings of Descartes*. Translated by J. Cottingham, R. Stoothoff, D. Murdoch, and A. Kenny. 3 volumes. New York: Cambridge University Press, 1985-91.

Hume, David. *Essays Moral, Political and Literary*. Edited by E. Miller. Indianapolis: Liberty Classics, 1985.

Hutcheson, Francis. *An Inquiry Concerning Beauty, Order, Harmony, Design*. Edited by P. Kivy, The Hague: Martinus Nijhoff, 1973.

Kant, Immanuel. *Critique of Judgment*. Translated by Werner Pluhar. Indianapolis: Hackett, 1987.

Leibniz, G.W. *New Essays on Human Understanding*. Translated and edited by P. Remnant and J. Bennett. New York: Cambridge University Press, 1981.

Locke, John. *An Essay Concerning Human Understanding*. Edited by Peter H. Nidditch. New York: Oxford University Press, 1975.

Tolstoy, Leo. *What is Art?* Translated by Aylmer Maude. London: Oxford University Press, 1930.

Select Secondary Resources

Barash, Moshe. *Modern Theories of Art, 1: From Winckelmann to Baudelaire*. New York: New York University Press, 1990. (An excellent historical approach to developments in theory of art.)

Gaut, Berys and Lopes, Dominic, eds. *The Routledge Companion to Aesthetics*. New York: Routledge, 2001. (An excellent general resource, including separate articles on key historical figures in the philosophy of art.)

Lawrence, George. *Taxonomy of Vascular Plants*. New York: Macmillan, 1963. (Although dated, this text contains an excellent history of classificatory systems in the sciences.)

Wittkower, Rudolf and Margot. *Born Under Saturn*. New York: W.W. Norton, 1963. (A history of artists and how they have been viewed from antiquity to the end of the early modern period.)